

Superfund Records Center
SITE: SUTTON BROOK
BREAK: 11.09
OTHER: 18774

9

Memo

4/29/88

From
Kathy Morris

To Mr. Tom Barton
Environmental Safety Dept.

RE: GP66 Miracle Cleaner

As per our telephone conversation,
we are enclosing our literature for your
review.

GP66 is an outstanding, safe cleaner
that may have many applications for your
organization.

We will contact you shortly to
determine your specific areas of interest
and arrange for a product demonstration
without obligation.

Thank you for your courtesy.

OMEGA DISTRIBUTORS, INC.
P.O. Box 375 16 Penny Lane
Milford, MA 01757
508-478-0923

TRW-01171

0908-2541

(617) 478-0923

OMEGA DISTRIBUTORS, INC.
PREVENTIVE MAINTENANCE AND
MAINTENANCE SUPPLY DISTRIBUTORS

KATHY MORRIS

P.O. BOX 375, 16 PENNY LANE
MILFORD, MA 01757

0908-2542

TRW-01172

OMEGA DISTRIBUTORS, INC.

CUSTODIAL, MAINTENANCE AND INDUSTRIAL SUPPLIES

16 PENNY LANE, P.O. BOX 375, MILFORD, MA 01757

(617) 478-0923

(As Of July 16, 1988, New Area Code 508)

RE: GP66 MIRACLE CLEANER

There are chemical cleaners and chemical cleaners ... but here's one that's SAFE! This one answers the age-old problem of employee and workplace safety ... yes, even for SAFE waste water management and environment.

GP66 Miracle Cleaner is USDA A-1 Certified. This means that GP66 is certified for use in cleaning on all surfaces and in all departments of official establishments operating under the Federal meat, poultry, shell and egg products inspection programs ... and that the United States Department of Agriculture ran GP66 through its government labs in Washington, D.C. GP66 is certified not to contain any of EPA's 132 top priority pollutants ... and NO PHOSPHATES. BIODEGRADABLE.

Under the Nuclear Certification Breakdown program, GP66 is free of Halogens, Sulphur, Chlorine, Mercury, Lead, Zinc and other low melting point metals.

So if the job of keeping your plant SAFE is YOURS ... GP66 Miracle Cleaner was made for you.

GP66 has a track record ... for the last 12 years General Motors in Baltimore has been successfully using GP66 for cleaning their forklifts, hydraulic presses, small parts elpo, module paint ovens, paint module spray booths, trim shop, vending areas, floor scrubbers, elpo areas, concrete floors, ovens, conveyors, robots, general house cleaning ... just about everywhere and anywhere.

Material at full strength shall not harm, in any way, any of the following materials:

Rubber	Electrial System	Upholstery
Plastics	Hydraulic Systems	Rugs and Carpeting
PVC	Vacuum Systems	Ceramic Tile
Wiring	Fiberglass	Vinyl-Asbestos Tile
Hoses	Chrome	

Material shall require no special handling or safety requirements other than normal practices such as the use of gloves and protective goggles or face shield.

Call (617) 478-0923 for additional information or arrange for a product demonstration, without obligation.

(See Reverse Side)

TRW-01173

0908-2543

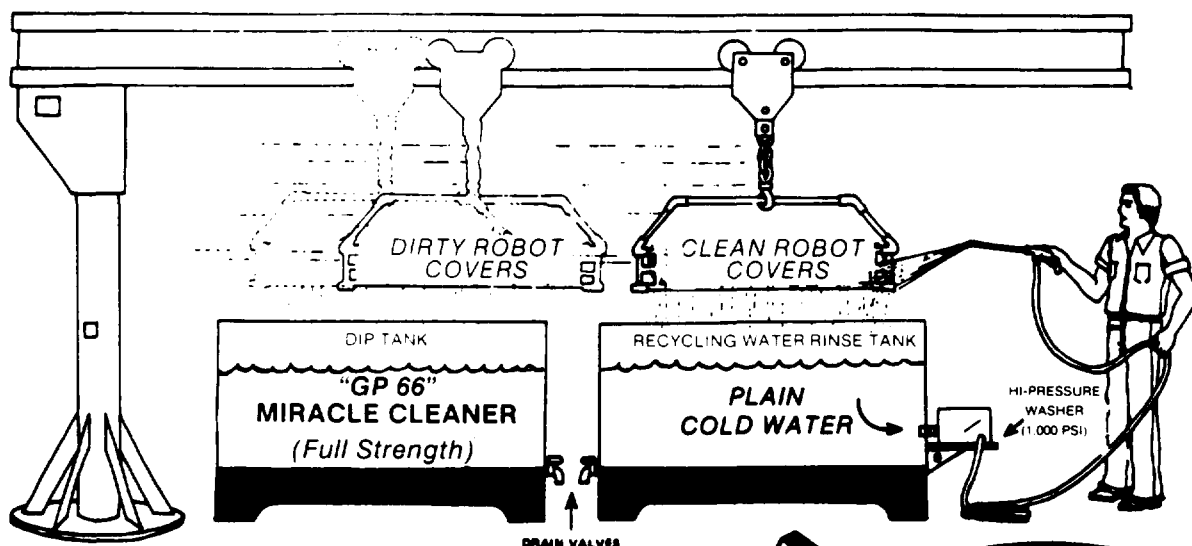
CLEAN YOUR ROBOT COVERS

APPROVED
BY GM LABS
IN
DETROIT

EASY... FAST... SAFE...
INEXPENSIVE

NEW

GP66[®] MIRACLE CLEANER



- ★ O.S.H.A. APPROVED
- ★ U.S.D.A. A1 CERTIFIED
- ★ SHIPPED WITHIN 24 HRS.
- ★ GUARANTEED

AT LAST!

THE PERFECT SOLUTION
FOR CLEANING YOUR
ROBOT COVERS.

A NEW EFFECTIVE DISCOVERY, GP66 MIRACLE CLEANER IS GUARANTEED TO CLEAN THE UNCLEANABLE... FAST. PERFECTED AFTER 17 YEARS IN OUR LABS... THIS SECRET REVOLUTIONARY FORMULA IS NON-FLAMMABLE AND YOU CAN USE IT OVER AND OVER AGAIN. "GP66" CAN DO THE JOB FOR YOU. SAVES YOU TIME, MONEY AND PATIENCE. EASY TO USE... NO TRAINING REQUIRED WITH THIS NEW DISCOVERY IN THE CLEANING OF YOUR DIRTY ROBOT COVERS. NO FUSS... NO MUSS... NO DANGEROUS CHEMICALS. MERELY DIP IT & SPRAY IT OFF.

GP66[®] Chemical Corp.

OMEGA DISTRIBUTORS, INC.

P.O. Box 375
MILFORD, MASSACHUSETTS 01757
(617) 478-0923

(As of July 18, 1988 New Area Code 508)

DIRECTIONS

1. DIP COVERS INTO DIP TANK OF GP66
2. LET SOAK 24-48 HOURS.
3. REMOVE FROM DIP TANK
4. MOVE BASKET ABOVE WATER TANK
5. WASH OFF PARTS WITH PLAIN COLD WATER HI-PRESSURE WASHER (500 PSI)
6. LET COVERS DRAIN A FEW MINUTES
7. COVERS ARE CLEAN AND READY TO INSTALL

NOTE: YOU CAN ELIMINATE THE RECYCLING WATER RINSE TANK & HI-PRESSURE WASHER BY USING THE RINSE CYCLE ON A LARGE WASHING MACHINE.

NEW

SECRET REVOLUTIONARY FORMULA!

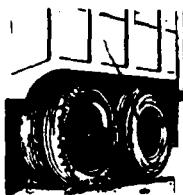
- ★ O.S.H.A. APPROVED
- ★ U.S.D.A. A-1 CERTIFIED
- ★ SHIPPED WITHIN 24 HRS.
- ★ GUARANTEED

GP66®

MIRACLE CLEANER

"CLEANS THE UNCLEANABLE"

- ★ GRAFFITI
- ★ VINYL TOPS
- ★ WHITEWALLS
- ★ OVENS
- ★ WAX STRIPPING
- ★ RUGS & UPHOLSTERY
- ★ CONCRETE
- ★ PATIO GRILLS & FURNITURE
- ★ BOATS & BOATING EQUIPMENT
- ★ LAWN MOWERS
- ★ GOLF CLUBS & BALLS
- ★ HUNTING & FISHING EQUIPMENT
- ★ FORKLIFT TRUCKS
- ★ PLUS 1001 USES

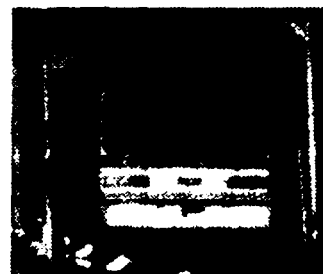


Wheels...Tires...
Hubs SPARKLE

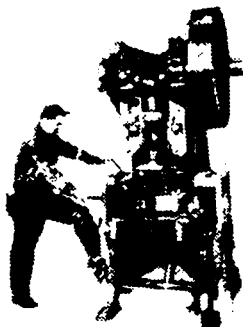
SO EASY TO CLEAN...
RADIATORS...
EVAPORATORS...



Strips it off... ALL of it... FAST



Remove Graffiti from Buses...
SAFE...EASY...FAST

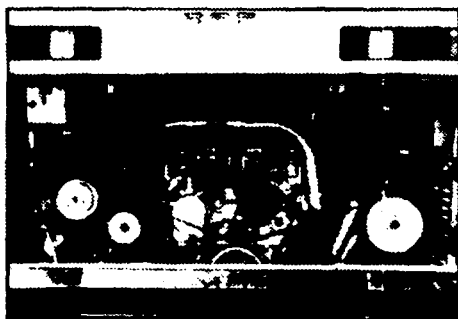
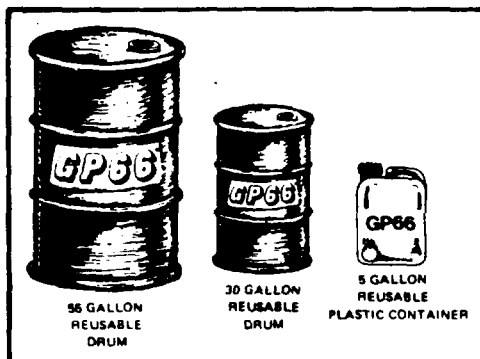


CLEANS MACHINERY
SAFE...EASY...FAST



FORKLIFTS...

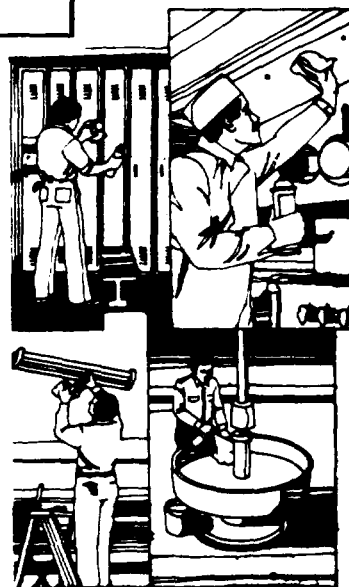
"You can clean it safer, better,
faster for less with GP66"



DIESEL
ENGINES

CLEANS 'EM...
LIKE NEW!

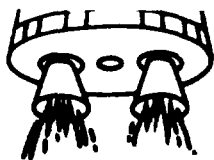
We are waiting to help you save money, time and headaches in all your cleaning problems. GP66 isn't just an amazing Graffiti Cleaner, you can use it to clean bus and truck engines... wheels and hubs... radiators... ovens... heat exchangers garbage trucks... dumpsters... air conditioner coils and evaporators... lockerrooms and showers... ceramic tile and grout... smoke residue from fires... odor, roach and grease control. We cannot list all the attributes of GP66 but certainly they also include, always being in touch with the latest developments in the chemistry of cleaning... U.S.D.A. A-1 Certified... meets O.S.H.A. requirements and best of all... GP66 WORKS! NO FUSS... NO MESS... NO DANGEROUS CHEMICALS ORDER TODAY AND WE'LL SHIP TOMORROW!



GP66® Chemical Corp.

OMEGA DISTRIBUTORS, INC.

P.O. Box 375
MILFORD, MASSACHUSETTS 01757
(617) 478-0923



DILUTION RATIO SHEET

GP66®

MIRACLE CLEANER

GOLF BAGS, BALLS & CLUBS
HUNTING & FISHING EQUIP.
BATHROOM PORCELAIN
KITCHEN APPLIANCES
EQUIP. & UTENSILS
WOODWORK
LINOLEUM
CERAMIC

WALLS
CABINETS
PANELING
MACHINERY
TILE FLOORS
COUNTER TOPS
PATIO FURNITURE
LIGHT GENERAL CLEANING

MIX 1 OZ. IN 1 GAL. WATER

SPRAY ON; SCRUB LIGHTLY; RINSE

EARTH MOVING EQUIPMENT
CONCRETE
CAR ENGINES
DUMP TRUCKS
RAILROAD CARS
FORK LIFT TRUCKS
INDUSTRIAL SHOWER & LOCKER AREAS

SMOKE HOUSE TAR
SPOT REMOVER
MEAT ROOMS
WHITEWALLS
GROUT

FULL STRENGTH

**SPRAY ON; LET SIT FOR 30 MIN. OR
LONGER; SCRUB LIGHTLY; RINSE**

OVENS
OUTDOOR GRILLS

GRILLS
BROILERS

FULL STRENGTH

SPRAY ON "HOT" SURFACE; WIPE; RINSE


**MEETS O.S.H.A.
REQUIREMENTS**

— WAX STRIPPING —

**MIX 1 PINT IN 1 GAL. WATER. SPRAY OR MOP ON; LET
SIT 5 MINUTES; RINSE OFF. IF WAX IS TOO THICK, USE
FULL STRENGTH; LET SIT 30 MINUTES OR MORE; RINSE.**


U.S.D.A. APPROVED

AUTO INTERIORS
EXHAUST FANS
COMPRESSORS
MARBLE
BOATS, BOAT CANVAS & EQUIPMENT

VINYL CAR TOPS
LAWN MOWERS
TERRAZZO
SLATE

MIX 5 OZ. IN 1 QUART WATER

SPRAY ON; SCRUB LIGHTLY; RINSE

PLUS

1,001

USES

**RINSE
WITH
POTABLE
WATER**

DISHWASHING, POTS & PANS
1 OZ. IN 3 GAL. WATER
RUGS & UPHOLSTERY
4 OZ. IN 1 GAL. WATER
LAUNDRY DETERGENT
2 OZ. IN A LOAD OF CLOTHES

STEAM CLEANER
100 PARTS WATER

HI-PRESSURE WASHER
100 PARTS WATER

CAR, BUS, TRUCK & AIRPLANE WASH
USE AS MUCH AS 600 PARTS WATER
THRU AUTOMATIC WASH EQUIPMENT

NOTE:

ON AREAS SUCH AS GLOSSY PAINTED SURFACES, VARNISHED AREAS, STAINLESS STEEL AND POLISHED SHINY ALUMINUM, MIX 1/2 OZ. OF "GP66" IN 1 GAL. WATER. SPRAY IT ON; RINSE WITH POTABLE WATER... DUE TO THE RAW CLEANING POWER OF THIS FORMULA, IT SHOULD NOT BE USED IN CONCENTRATED FORM ON PAINTED OR VARNISHED SURFACES. DO NOT USE ON POLISHED ALUMINUM. USE ONLY ON EXTREMELY OXIDIZED OR PITTED ALUMINUM.

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P.O. Box 375
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(617) 478-0923

TRW-01176

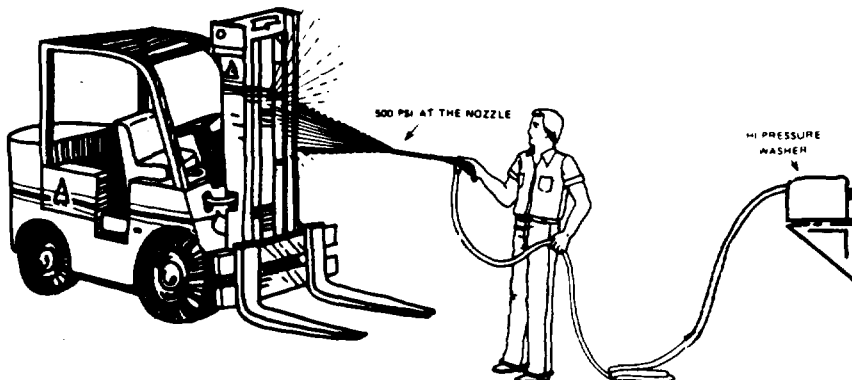
NEW

FORKLIFT SCR CLEANING DISCOVERY!

(GET THE O.S.H.A. INSPECTOR OFF YOUR BACK... SWITCH TO O.S.H.A. APPROVED "GP66")

★ MEETS O.S.H.A. REQUIREMENT
★ U.S.D.A. A-1 CERTIFIED
★ GUARANTEED

GP66®
**MIRACLE
CLEANER**



- "GP 66" IS SAFE TO USE... Your men can clean their greasy hands with it.
- "GP 66" IS SAFE TO USE... It won't harm wire or electrical components.
- "GP 66" IS SAFE TO USE... It won't deteriorate your plastic connectors and parts
- "GP 66" IS ECONOMICAL TO USE... Uses 60% less than your old cleaner.
- "GP 66" IS ECONOMICAL TO USE... Saves on your total cost factors; such as man hours and repairs.
- "GP 66" WORKS... FAST... EASY... SAFE.

★ ALSO CLEANS GAS & ELECTRIC FORKLIFTS ★

Your lift truck will need less repairing when kept on the "GP66" Space Age **MIRACLE CLEANER** cleaning program. Your superiors will immediately notice the BIG difference in your beautiful fleet... which will be a BIG reflection on YOU!... You also will have a better relationship with your mechanics when you give them a nice clean lift truck to work on.

Your men don't need special training to use this program because "GP66" comes ready to use... NO MIXING... NO FUSS... NO MESS... NO DANGEROUS CHEMICALS... NO FANCY EQUIPMENT TO BREAK DOWN... "GP66" also helps keep your drains from clogging and your floors clean.

"We ship same day orders received."

OMEGA DISTRIBUTORS INC.

P.O. BOX 375

MILFORD, MASS. 01757

(617)478-0923

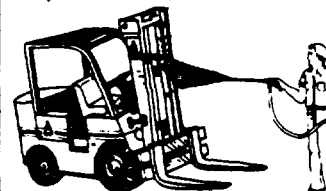
"You can clean it safer, better, faster for less with GP66"

AT LAST!
THE PERFECT SOLUTION TO CLEANING
YOUR SCR & EV-1 LIFT TRUCKS
SAFELY... ECONOMICALLY...
FAST & EASY.

"GP66" IS READY TO USE.

STEP #1

Spray "GP66" on... (takes only 10 seconds).



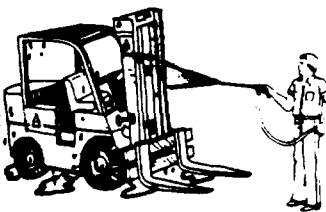
STEP #2

Let sit 5 - 30 minutes.

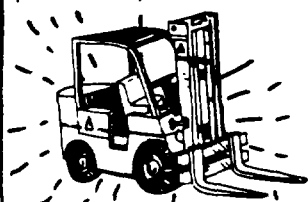


STEP #3

Spray off with plain cold water. (takes 5 minutes).



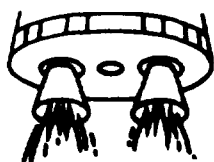
Dries fast... so your mechanics can work on 'em immediately and/or your painters can paint 'em fast.



If you or your men have a question call me on my direct HOT-LINE, Area Code (617) 478-0923, ask for JIM GOVOSTES

TRW-01177

0908-2547



DILUTION RATIO SHEET

GP66®

MIRACLE CLEANER

GOLF BAGS, BALLS & CLUBS
HUNTING & FISHING EQUIP.
BATHROOM PORCELAIN
KITCHEN APPLIANCES
EQUIP. & UTENSILS
WOODWORK
LINOLEUM
CERAMIC

WALLS
CABINETS
PANELING
MACHINERY
TILE FLOORS
COUNTER TOPS
PATIO FURNITURE
LIGHT GENERAL CLEANING

MIX 1 OZ. IN 1 GAL. WATER

SPRAY ON; SCRUB LIGHTLY; RINSE

EARTH MOVING EQUIPMENT
CONCRETE
CAR ENGINES
DUMP TRUCKS
RAILROAD CARS
FORK LIFT TRUCKS
INDUSTRIAL SHOWER & LOCKER AREAS

SMOKE HOUSE TAR
SPOT REMOVER
MEAT ROOMS
WHITEWALLS
GROUT

FULL STRENGTH

**SPRAY ON; LET SIT FOR 30 MIN. OR
LONGER; SCRUB LIGHTLY; RINSE**

OVENS
OUTDOOR GRILLS

GRILLS
BROILERS

FULL STRENGTH

SPRAY ON "HOT" SURFACE; WIPE; RINSE


**MEETS O.S.H.A.
REQUIREMENTS**

- WAX STRIPPING -

**MIX 1 PINT IN 1 GAL. WATER. SPRAY OR MOP ON; LET
SIT 5 MINUTES; RINSE OFF. IF WAX IS TOO THICK, USE
FULL STRENGTH; LET SIT 30 MINUTES OR MORE; RINSE.**


U.S.D.A. APPROVED

AUTO INTERIORS
EXHAUST FANS
COMPRESSORS
MARBLE
BOATS, BOAT CANVAS & EQUIPMENT

VINYL CAR TOPS
LAWN MOWERS
TERRAZZO
SLATE

MIX 5 OZ. IN 1 QUART WATER

SPRAY ON; SCRUB LIGHTLY; RINSE

**PLUS
1,001
USES**

**RINSE
WITH
POTABLE
WATER**

DISHWASHING, POTS & PANS
1 OZ. IN 3 GAL. WATER
RUGS & UPHOLSTERY
4 OZ. IN 1 GAL. WATER

LAUNDRY DETERGENT
2 OZ. IN A LOAD OF CLOTHES

STEAM CLEANER
100 PARTS WATER

HI-PRESSURE WASHER
100 PARTS WATER

CAR, BUS, TRUCK & AIRPLANE WASH
USE AS MUCH AS 600 PARTS WATER
THRU AUTOMATIC WASH EQUIPMENT

NOTE:

ON AREAS SUCH AS GLOSSY PAINTED SURFACES, VARNISHED AREAS, STAINLESS STEEL AND POLISHED SHINY ALUMINUM, MIX 1/2 OZ. OF "GP66" IN 1 GAL. WATER. SPRAY IT ON; RINSE WITH POTABLE WATER... DUE TO THE RAW CLEANING POWER OF THIS FORMULA, IT SHOULD NOT BE USED IN CONCENTRATED FORM ON PAINTED OR VARNISHED SURFACES. DO NOT USE ON POLISHED ALUMINUM. USE ONLY ON EXTREMELY OXIDIZED OR PITTED ALUMINUM.

THIS PRODUCT CARRIES THE U.S.D.A. U.S. DEPARTMENT OF LABOR
SAFETY CERTIFICATION FOR USE IN Occupational Safety and Health Administration
CLEANING IN ALL DEPTS OF
OFFICIAL ESTABLISHMENTS
OPERATING UNDER THE
FEDERAL MEAT, POULTRY, SHELL EGG PRODUCTS INSPECTION PROGRAMS.

Form Approved
OMB No. 44-R1387

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME GP66 CHEMICAL CORPORATION	EMERGENCY TELEPHONE NO. 301-633-6600 301-485-0666 301-643-6652 301-285-0454
ADDRESS (Number, Street, City, State, and ZIP Code) 1901 PORTAL ST., BALTO., MD 21224 P.O. BOX 8832	
CHEMICAL NAME AND SYNONYMS SYNTHETIC DETERGENT	TRADE NAME AND SYNONYMS GP66 MIRACLE CLEANER
CHEMICAL FAMILY NONIONIC SURFACTANT	FORMULA surfactants; wetting agents; emulsifiers etc builders

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS DOES NOT PERTAIN TO THIS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES CLEANER			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
GP66 IS NON-HAZARDOUS. GP66 IS CERTIFIED SAFE BY THE UNITED STATES DEPT					
OF AGRICULTURE AND CARRIES THE TOP A-1 RATING. GP66 DOES NOT CONTAIN ANY					
OF EPA'S 132 TOP PRIORITY POLLUTANTS. GP66 IS COPYRIGHTED WITH THE U.S.					
PATENT OFFICE. GP66 IS A PROPRIETARY FORMULATION AND WE ARE SOLE SOURCE.					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	220°	SPECIFIC GRAVITY (H ₂ O=1)	1,002 at 2
VAPOR PRESSURE (mm Hg.)	NONE	PERCENT, VOLATILE BY VOLUME (%)	NONE
VAPOR DENSITY (AIR=1)	NONE	EVAPORATION RATE (_____ =1)	Same as H2O
SOLUBILITY IN WATER	COMPLETE		
APPEARANCE AND ODOR PINK... NO OBJECTIONABLE ODOR			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) NON-FLAMMABLE	FLAMMABLE LIMITS	Let	Uet
EXTINGUISHING MEDIA			
SPECIAL FIRE FIGHTING PROCEDURES WATER BASE DOES NOT PERTAIN			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	
EFFECTS OF OVEREXPOSURE MAY CAUSE SKIN TO DRY OUT AND/OR RED RASH	
EMERGENCY AND FIRST AID PROCEDURES AVOID CONTACT WITH EYES AND SKIN. IN CASE OF CONTACT FLUSH THOROUGHLY WITH COPIUS AMOUNTS OF WATER. IF IRRITATION PERSISTS GET MEDICAL ATTENTION.	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATIBILITY (Materials to avoid)			
HAZARDOUS DECOMPOSITION PRODUCTS			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED CLEAN UP WITH WATER, BUCKET AND MOP.	
WASTE DISPOSAL METHOD USE STANDARD INDUSTRIAL PRACTICES	

SECTION VIII - SPECIAL PROTECTION INFORMATION			
RESPIRATORY PROTECTION (Specify type)			
VENTILATION	LOCAL EXHAUST YES	SPECIAL	
	MECHANICAL (General)	OTHER	
PROTECTIVE GLOVES RUBBER OR PLASTIC		EYE PROTECTION YES	
OTHER PROTECTIVE EQUIPMENT			

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
OTHER PRECAUTIONS IF GP66 IS SPILLED ON CLOTHING, CHANGE CLOTHING IMMEDIATELY AND RINSE AFFECTED SKIN WITH COPIUS AMOUNTS OF WATER. IF IRRITATION PERSISTS GET MEDICAL ATTENTION. RINSE CLOTHING WITH COPIUS AMOUNTS OF WATER.	

GPO 930-540

NAME: J. Kaplanges
SIGNATURE: *J. Kaplanges*
DATE: 2/5/88

Form OSHA-20
Rev. May 72

Page - 1
Customer Number : 84000

ACHESON COLLOIDS COMPANY
NO-CHARGE

Date - 6/29/87
SHIPPER NUMBER : 38541

MATERIAL SAFETY DATA SHEET

* REVISION NO. : 001

REVISION DATE : 4/03/87 *

SECTION I - SOURCE AND NOMENCLATURE

Manufacturer's Name
ACHESON COLLOIDS COMPANY

Emergency Telephone No.
313-984-5581

Address
PO Box 288, Port Huron, MI 48060

Chemical Family
PTFE/Solvent

Trade Name and Synonyms
OP 1904

Chemical Name and Synonyms
PTFE in Solvent

SECTION II - OSHA REGULATED INGREDIENTS

<u>Basic Material</u>	<u>Approximate Wt. %</u>	<u>Exposure Limit</u>
Propylene Glycol Methyl Ether Acetate	14.00	100.00 Ppm
Formaldehyde	1.50	3.00 Ppm
Ethyl Alcohol	15.00	1000.00 Ppm
Toluene	14.00	200.00 Ppm
Butanol	23.00	50.00 Ppm
Amyl Acetate	8.00	100.00 Ppm
Xylene	1.00	100.00 Ppm

SECTION III - PHYSICAL DATA

<u>Boiling Point</u>	N/A	<u>Vapor Pressure</u>	N/A	<u>Vapor Density</u>	N/A
<u>Melting Point</u>	N/A	<u>Evaporation Rate</u>	N/A	<u>Volatile</u>	75.0
<u>Specific Gravity</u>	.96	<u>Solubility in Water</u>	Nil		
<u>Appearance/Odor</u> Black Fluid, Sharp Odor					

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

<u>Flash Point</u>	46 F	<u>FLAMMABLE (EXPLOSIVE) LIMITS</u>	<u>Upper</u>	N/A
			<u>Lower</u>	N/A

Method

Tag Closed Cup

Extinguishing Media

FOAM, CARBON DIOXIDE, DRY CHEMICAL.

Special Fire Fighting Procedures

SELF-CONTAINED BREATHING SUPPLY.

Unusual Fire and Explosion Hazards

KEEP AWAY FROM SPARKS, OPEN FLAMES, OR OTHER SOURCES OF IGNITION.

SECTION V - HEALTH HAZARD DATA

Effects of Overexposure

Inhalation

REPEATED INHALATION OF CONCENTRATION ABOVE PERMISSIBLE EXPOSURE LIMITS MAY RESULT IN SEVERE OR PERMANENT TOXIC EFFECTS.

Ingestion

MAY RESULT IN SEVERE OR PERMANENT TOXIC EFFECTS.

Eye

MAY CAUSE SEVERE IRRITATION, BURNING SENSATION, BLURRED VISION.

Skin

REPEATED OR PROLONGED CONTACT CAN CAUSE IRRITATION AND DERMATITIS.

Inhalation

IF AFFECTED, REMOVE INDIVIDUAL TO FRESH AIR; IF BREATHING IS DIFFICULT, ADMINISTER OXYGEN; IF BREATHING HAS STOPPED, GIVE ARTIFICIAL RESPIRATION AND SEEK MEDICAL ATTENTION IMMEDIATELY.

Ingestion

KEEP INDIVIDUAL CALM AND SEEK MEDICAL ATTENTION IMMEDIATELY.

Eye

FLUSH EYES WITH WATER, LIFTING UPPER AND LOWER LIDS OCCASIONALLY, AND SEEK MEDICAL ATTENTION IMMEDIATELY.

Skin

WASH WITH SOAP AND WATER; REMOVE CONTAMINATED CLOTHING AND LAUNDER BEFORE REUSE.

SECTION VI - REACTIVITY DATA

Conditions Contributing to Instability

STABLE.

Conditions Contributing to Hazardous Polymerization

NONE.

Incompatibility (MATERIALS TO AVOID)

STRONG OXIDIZERS.

Hazardous Decomposition of Products

PERFLUOROCARBON COMPOUNDS.

SECTION VII - SPILL OR LEAK PROCEDURES

Steps to be Taken in Case Material is Released or Spilled

REMOVE ALL SOURCES OF IGNITION AND VENTILATE AREA; APPLY ABSORBENT MATERIAL AND TRANSFER TO CONTAINERS.

Waste Disposal Method

CONSULT WITH FEDERAL, STATE AND LOCAL WASTE REGULATIONS.

SECTION VIII - SPECIAL PROTECTION INFORMATION

Ventilation Requirements

PROVIDE SUFFICIENT LOCAL EXHAUST VENTILATION TO MAINTAIN EXPOSURE BELOW TLV(S).

Protective Equipment:

Eye

WEAR CHEMICAL SPLASH GOGGLES.

Glove

WEAR SOLVENT RESISTANT GLOVES.

Respirator

IN AREAS WHERE THE TLV OF THIS PRODUCT IS EXCEEDED, AIR SUPPLIED BREATHING EQUIPMENT IS REQUIRED.

Other

WEAR PROTECTIVE CLOTHING TO PREVENT SKIN CONTACT.

SECTION IX - SPECIAL PRECAUTIONS

Precautions to be Taken in Handling and Storage

THIS PRODUCT CONTAINS SUSPECTED CANCER AGENT. AVOID EXPOSURE ABOVE TLV LIMIT.

These data are offered in good faith as typical values and not as a product specification. No warranty, either expressed or implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate.

BETZ LABORATORIES, INC.
4636 SOMERTON ROAD, TREVOSE, PA. 19047
BETZ MATERIAL SAFETY DATA SHEET

24 HOUR EMERGENCY TELEPHONE (HEALTH OR ACCIDENT) 1-800-877-1940

REAGENT : GALLIC ACID
MASS. REG.#

CODE 276

(PAGE 1 OF 3)
EFFECTIVE DATE 02-16-91
PRINTED: 01-31-92

REVISIONS TO SECTIONS: -;EDIT:APPENDIX

REAGENT APPLICATION : FIELD TEST REAGENT

-----SECTION 1-----HAZARDOUS INGREDIENTS-----

INFORMATION ON PHYSICAL HAZARDS, HEALTH HAZARDS, PEL'S AND TLV'S FOR SPECIFIC REAGENT INGREDIENTS AS REQUIRED BY THE OSHA HAZARD COMMUNICATIONS STANDARD IS LISTED. REFER TO SECTION 4 (PAGE 2) FOR OUR ASSESSMENT OF THE POTENTIAL ACUTE AND CHRONIC HAZARDS OF THIS FORMULATION. FOR MASSACHUSETTS, THE PERCENT OF HAZARDOUS INGREDIENT IN THE FORMULATION IS INDICATED BELOW.

GALLIC ACID***[3,4,5-TRIHYDROXY BENZOIC ACID];CAS#149-91-7;EYE AND SKIN IRRITANT;POTENTIAL REPRODUCTIVE TOXIN;PEL:NONE;TLV:NONE.

-----SECTION 2-----TYPICAL PHYSICAL DATA-----

PH: NO DATA	ODOR: NONE
FL.PT.(DEG.F): NA	SP.GR.(70F)OR DENSITY: 1.690
VAPOR PREURE(mmHG): NA	VAPOR DENSITY(AIR=1): NA
VISC cp@70F: NA	%SOLUBILITY(WATER): 5
EVAP.RATE: NA WATER=1	APPEARANCE: WHITE
PHYSICAL STATE: POWDER	FREEZE POINT(DEG.F): NA

-----SECTION 3-----REACTIVITY DATA-----

STABLE. BET. TANK CLEAN-OUT CATEGORY 'B'

THERMAL DECOMPOSITION (DESTRUCTIVE FIRES) YIELDS ELEMENTAL OXIDES.

REAGENT: GALLIC ACID

-----SECTION 4-----HEALTH HAZARD EFFECTS-----

ACUTE SKIN EFFECTS *** PRIMARY ROUTE OF EXPOSURE

MODERATELY IRRITATING TO THE SKIN

ACUTE EYE EFFECTS ***

MODERATELY IRRITATING TO THE EYES

ACUTE RESPIRATORY EFFECTS *** PRIMARY ROUTE OF EXPOSURE

DUSTS CAUSE IRRITATION TO UPPER RESPIRATORY TRACT

CHRONIC EFFECTS OF OVEREXPOSURE***

PROLONGED OR REPEATED OVEREXPOSURES MAY CAUSE REPRODUCTIVE TOXICITY AND IRRITANT DERMATITIS

MEDICAL CONDITIONS AGGRAVATED ***

NOT KNOWN

SYMPTOMS OF EXPOSURE ***

CAUSES IRRITATION OF THE SKIN,EYES,AND/OR RESPIRATORY SYSTEM.

-----SECTION 5-----FIRST AID INSTRUCTIONS-----

SKIN CONTACT***

REMOVE CONTAMINATED CLOTHING.WASH EXPOSED AREA WITH A LARGE QUANTITY OF SOAP SOLUTION OR WATER FOR 15 MINUTES

EYE CONTACT***

IMMEDIATELY FLUSH EYES WITH WATER FOR 15 MINUTES.IMMEDIATELY CONTACT A PHYSICIAN FOR ADDITIONAL TREATMENT

INHALATION EXPOSURE***

REMOVE VICTIM FROM CONTAMINATED AREA TO FRESH AIR.APPLY APPROPRIATE FIRST AID TREATMENT AS NECESSARY

INGESTION***

GENERAL-DO NOT FEED ANYTHING BY MOUTH TO AN UNCONSCIOUS OR CONVULSIVE VICTIM

SPECIFIC- DILUTE CONTENTS OF STOMACH.INDUCE VOMITING BY ONE OF THE STANDARD METHODS.IMMEDIATELY CONTACT A PHYSICIAN

-----SECTION 6-----SPILL,DISPOSAL AND FIRE INSTRUCTIONS-----

SPILL INSTRUCTIONS***

GENERAL-VENTILATE AREA,USE SPECIFIED PROTECTIVE EQUIPMENT.SWEEP UP AND PLACE IN WASTE DISPOSAL CONTAINER.

SPECIFIC- FLUSH AREA WITH WATER. WET AREA MAY BE SLIPPERY. SPREAD SAND/GRIT

DISPOSAL INSTRUCTIONS***

GENERAL-WATER CONTAMINATED WITH THIS REAGENT MAY BE SENT TO A SANITARY SEWER,IN ACCORDANCE WITH ANY LOCAL AGREEMENT,A TREATMENT FACILITY OR DISCHARGED UNDER A NPDES PERMIT

REAGENT(AS IS)- INCINERATE OR BURY IN APPROVED LANDFILL

FIRE EXTINGUISHING INSTRUCTIONS***

FIREFIGHTERS SHOULD WEAR POSITIVE PRESSURE SELF-CONTAINED BREATHING APPARATUS(FULL FACE-PIECE TYPE).PROPER FIRE EXTINGUISHING MEDIA:

DRY CHEMICAL,CARBON DIOXIDE,FOAM OR WATER

REAGENT: GALLIC ACID

-----SECTION 7-----SPECIAL PROTECTIVE EQUIPMENT-----

USE PROTECTIVE EQUIPMENT IN ACCORDANCE WITH 29CFR SECTION 1910.132-134. USE RESPIRATORS WITHIN USE LIMITATIONS OR ELSE USE SUPPLIED AIR RESPIRATORS.

VENTILATION PROTECTION***

ADEQUATE VENTILATION TO MAINTAIN DUST CONCENTRATIONS BELOW THE EXPOSURE LIMIT OF 10MG/M3(PEL/TLV) FOR NUISANCE DUSTS.

RECOMMENDED RESPIRATORY PROTECTION***

IF VENTILATION IS INADEQUATE OR SIGNIFICANT REAGENT EXPOSURE IS LIKELY, USE A RESPIRATOR WITH DUST/MIST FILTERS.

RECOMMENDED SKIN PROTECTION***

RUBBER GLOVES

WASH OFF AFTER EACH USE.REPLACE AS NECESSARY

RECOMMENDED EYE PROTECTION***

SPLASH PROOF CHEMICAL GOGGLES

-----SECTION 8-----STORAGE AND HANDLING PRECAUTIONS-----

STORAGE INSTRUCTIONS***

KEEP CONTAINER CLOSED WHEN NOT IN USE.

KEEP DRY

HANDLING INSTRUCTIONS***

NORMAL CHEMICAL HANDLING

***** THIS MSDS WAS WRITTEN TO COMPLY WITH THE OSHA HAZARD COMMUNICATION STANDARD *****

***** THIS MSDS WAS WRITTEN TO COMPLY WITH THE OSHA HAZARD COMMUNICATION STANDARD *****

APPENDIX: REGULATORY INFORMATION

THE CONTENT OF THIS APPENDIX REPRESENTS INFORMATION KNOWN TO BETZ ON THE EFFECTIVE DATE OF THIS MSDS. THIS INFORMATION IS BELIEVED TO BE ACCURATE. ANY CHANGES IN REGULATIONS WILL RESULT IN UPDATED VERSIONS OF THIS DOCUMENT.

...TSCA ALL COMPONENTS OF THIS PRODUCT ARE LISTED ON THE TSCA INVENTORY

...REPORTABLE QUANTITY(RQ) FOR UNDILUTED PRODUCT:

NOT APPLICABLE

...RCRA: IF THIS PRODUCT IS DISCARDED AS A WASTE,THE RCRA HAZARDOUS WASTE IDENTIFICATION NUMBER IS: NOT APPLICABLE

...DOT HAZARD/UN#/ER GUIDEN# IS: NOT APPLICABLE

...CALIFORNIA SAFE DRINKING WATER ACT (PROPOSITION 65) MATERIALS: NONE

...SARA SECTION 302 CHEMICALS: NONE

...SARA SECTION 313 CHEMICALS: NONE

...SARA SECTION 312 HAZARD CLASS: IMMEDIATE(ACUTE) AND DELAYED(CHRONIC)

NFPA/HMIS : HEALTH - 2 ; FIRE - 1 ; REACTIVITY - 0 ; SPECIAL - NONE ; PE - B

SECTION I - MANUFACTURERS INFORMATION

PRODUCT CODE IDENTITY: 829R311 COMPANY NAME: COOK PAINT & VARNISH CO.
PRODUCT NAME: ~~WATERPROOF GARNET~~ HI/S BN ADDRESS: 919 E. 14TH STREET
NPCA HMIS RATING: NORTH KANSAS CITY MO 64116
DATE OF MSDS: 12/15/89 PREPARED BY: HAZARD COMMUNICATION DEPT
EMERGENCY TELEPHONE: 816-391-6000 INFORMATION TELEPHONE: 816-391-6003

ATTN: SAFETY AND HEALTH OFFICER
TRW INC FASTENERS DIV
265 THIRD STREET
CAMBRIDGE MA 02142

CUSTOMER NUMBER: 543462
DATE PRINTED: 05/21/90
COMPLEX: 380

SECTION II - HAZARDOUS INGREDIENTS

N-BUTYL ALCOHOL

CAS #: 000071-36-3 WT. %: 5.000 VAPOR PRESSURE: 4.0
(MMHG/DEG F)

EXPOSURE LIMIT:
ACGIH TLV/CEILING: 50PPM (150MG/CU.M.)(SKIN)
OSHA PEL/CEILING: 50 PPM (150MG/CU.M.)(SKIN)

TOLUENE

CAS #: 000108-88-3 WT. %: 5.000 VAPOR PRESSURE: 22.0
(MMHG/DEG F)

EXPOSURE LIMIT:
ACGIH TLV/TWA: 100 PPM (375 MG/CU.M.)
ACGIH TLV/STEL: 150 PPM (560 MG/CU.M.)
OSHA PEL/TWA: 100 PPM (375 MG/CU.M.)
OSHA PEL/STEL: 150 PPM (560 MG/CU.M.)
OTHER:

IRON OXIDE (FERRIC OXIDE)

CAS #: 001309-37-1 WT. %: 5.000 VAPOR PRESSURE: N/A
(MMHG/DEG F)

EXPOSURE LIMIT:
ACGIH TLV/TWA: 5 MG/CU.M., IRON OXIDE FUME AS IRON (FE)
OSHA PEL/TWA: 10 MG/CU.M. (TOTAL PARTICULATE)

TALC (HYDROUS MAGNESIUM SILICATE)

CAS #: 014807-96-6 WT. %: 5.000 VAPOR PRESSURE: N/A
(MMHG/DEG F)

EXPOSURE LIMIT:
ACGIH TLV/TWA: 2 MG/CU.M. (RESPIRABLE DUST)
OSHA PEL/TWA: 2 MG/CU.M. (RESPIRABLE DUST)

BARIUM SULPHATE, 59% BARIUM (BA)

CAS #: 007727-43-7 WT. %: 5.000 VAPOR PRESSURE: N/A
(MMHG/DEG F)

EXPOSURE LIMIT:
ACGIH TLV/TWA: 10MG/CU.M.
OSHA PEL/TWA: 10MG/CU.M.

PRODUCT CODE IDENTITY: 629R311

PRODUCT NAME: #A12EN8781 GARNET HI/S EN

1. 4 TRIMETHYLBENZENE

CAS #: 000095-63-6 WT. %: 5.000 VAPOR PRESSURE: N/A
(MMHG/DEG F)EXPOSURE LIMIT:
ACGIH TLV/TWA: 25 PPM (125 MG/CU.M.)
OSHA PEL/TWA: 25 PPM (125 MG/CU.M.)

TRIMETHYL BENZENE (MIXED ISOMERS)

CAS #: 025551-13-7 WT. %: 5.000 VAPOR PRESSURE: N/A
(MMHG/DEG F)EXPOSURE LIMIT:
ACGIH TLV/TWA: 25 PPM (125 MG/CU.M.)
OSHA PEL/TWA: 25 PPM (125 MG/CU.M.)

SILICA, AMORPHOUS

CAS #: 007631-86-9 WT. %: 5.000 VAPOR PRESSURE: N/A
(MMHG/DEG F)EXPOSURE LIMIT:
ACGIH TLV/TWA: 10MG/CU.M. TOTAL DUST
OSHA PEL/TWA: 6 MG/CU.M. TOTAL DUST

METHYL ETHYL KETONE

CAS #: 000078-93-3 WT. %: 5.000 VAPOR PRESSURE: 71.0
(MMHG/DEG F)EXPOSURE LIMIT:
ACGIH TLV/TWA: 200 PPM (590 MG/CU.M.)
ACGIH TLV/STEL: 300 PPM (885 MG/CU.M.)
OSHA PEL/TWA: 200 PPM (590 MG/CU.M.)
OSHA PEL/STEL: 300 PPM (885 MG/CU.M.)
OTHER:

THIS MATERIAL CONTAINS INGREDIENTS COVERED BY THE CALIFORNIA "SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986" (PROPOSITION 65).

SECTION III - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE TO PRODUCT. PRIMARY ROUTES OF ENTRY ARE:

EYE CONTACT: IRRITATION. SYMPTOMS ARE TEARING, REDNESS AND DISCOMFORT.

SKIN CONTACT: IRRITATION. CAN CAUSE DEFATTING OF SKIN WHICH MAY LEAD TO DERMATITIS.

INHALATION: IRRITATION TO NOSE AND THROAT. EXTENDED OR REPEATED EXPOSURE TO CONCENTRATIONS ABOVE THE RECOMMENDED EXPOSURE LIMITS MAY CAUSE BRAIN OR NERVOUS SYSTEM DEPRESSION, CAUSING DIZZINESS, HEADACHE OR NAUSEA AND IF CONTINUED INDEFINITELY, LOSS OF CONSCIOUSNESS, LIVER AND KIDNEY DAMAGE.

REPORTS HAVE ASSOCIATED REPEATED OR PROLONGED OCCUPATIONAL OVEREXPOSURE TO SOLVENTS WITH PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE. INTENTIONAL MISUSE BY DELIBERATELY CONCENTRATING AND INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.

GESTION: MAY CAUSE MOUTH, THROAT, ESOPHAGUS AND STOMACH IRRITATION, NAUSEA, VOMITING AND DIARRHEA.

PRODUCT CODE IDENTITY: 829R311

PRODUCT NAME: WA12EN8781 GARNET HI/S EN

MEI AL CONDITIONS THAT MAY BE AGGRAVATED BY EXPOSURE TO THIS PRODUCT:
PREEXISTING EYE, SKIN, LIVER, KIDNEY AND RESPIRATORY DISORDERS.

EMERGENCY AND FIRST AID PROCEDURES:

IN CASE OF EYE CONTACT, FLUSH IMMEDIATELY WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION; FOR SKIN, WASH THOROUGHLY WITH SOAP AND WATER. IF AFFECTED BY INHALATION OF VAPORS OR SPRAY MIST, REMOVE TO FRESH AIR. IF SWALLOWED, GET MEDICAL ATTENTION IMMEDIATELY.

SECTION IV - PHYSICAL DATA

BOILING POINT, DEG. F. 175

VAPOR DENSITY IS HEAVIER THAN AIR

WEIGHT PER GALLON (LBS): 9.73

EVAPORATION RATE IS SLOWER THAN ETHER

PERCENT VOLATILE BY VOLUME: 40.363

PHYSICAL STATE: LIQUID

ODOR: AROMATIC

APPEARANCE:

ODOR THRESHOLD: (NOT AVAILABLE)

SPECIFIC GRAVITY: 1.16

VAPOR PRESSURE: (NOT AVAILABLE)

FREEZING POINT: (NOT AVAILABLE)

PH: (NOT AVAILABLE)

COEFFICIENT OF WATER/OIL
DISTRIBUTION: (NOT AVAILABLE)

SECTION V - FIRE AND EXPLOSION HAZARD DATA

OSHA FLAMMABILITY CLASSIFICATION: FLAMMABLE LIQUID CLASS 1B

FL. POINT SETA CLOSED CUP, DEG F: 23

DOT HAZARD CLASS: RED-LABEL, FLAMMABLE LIQUID

LEL (%): 1.00

EXTINGUISHING MEDIA: FOAM, CARBON DIOXIDE, DRY CHEMICAL, WATER FOG.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

VAPORS MAY CAUSE FLASH FIRE. KEEP CONTAINERS TIGHTLY CLOSED AND ISOLATE FROM HEAT, ELECTRICAL EQUIPMENT, SPARKS AND FLAME. NEVER USE WELDING OR CUTTING TORCH ON OR NEAR DRUM (EVEN EMPTY) BECAUSE PRODUCT (EVEN JUST RESIDUE) CAN IGNITE EXPLOSIVELY.

IF APPLIED IN CONFINED AREAS AND TANKS, USE ONLY EXPLOSION-PROOF AND PROPERLY GROUNDED EQUIPMENT, SPARK-PROOF TOOLS AND SPARK-PROOF SHOES.

SPECIAL FIRE FIGHTING PROCEDURES:

FULL PROTECTIVE EQUIPMENT INCLUDING SELF-CONTAINED BREATHING APPARATUS SHOULD BE USED. WATER SPRAY MAY BE INEFFECTIVE. IF WATER IS USED, FOG NOZZLES ARE PREFERABLE. WATER MAY BE USED TO COOL CLOSED CONTAINERS TO PREVENT PRESSURE BUILD-UP AND POSSIBLE AUTO-IGNITION OR EXPLOSION WHEN EXPOSED TO EXTREME HEAT

SECTION VI - REACTIVITY DATA

STABILITY: STABLE HAZARDOUS POLYMERIZATION: NONE UNDER NORMAL CONDITIONS.

CONDITIONS TO AVOID: ELEVATED TEMPERATURES.

INCOMPATIBILITY (MATERIALS TO AVOID):

STRONG ACIDS AND STRONG OXIDIZING AGENTS. IF THIS PRODUCT IS NOT WATER REDUCIBLE, AVOID WATER.

HAZARDOUS DECOMPOSITION PRODUCTS:

THERMAL DECOMPOSITION OR COMBUSTION CAN PRODUCE FUMES CONTAINING ORGANIC LIDS, CARBON DIOXIDE AND CARBON MONOXIDE.

PRODUCT CODE IDENTITY: 829R311

PRODUCT NAME: WA12EN8731 GARNET HI/3 EN

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

REMOVE ALL SOURCES OF IGNITION (FLAMES, HOT SURFACES, AND ELECTRICAL, STATIC, OR FRICTIONAL SPARKS). AVOID BREATHING VAPORS. VENTILATE AREA. CONTAIN AND REMOVE WITH INERT ABSORBENT AND NON-SPARKING TOOLS.

WASTE DISPOSAL METHOD:

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS. DO NOT INCINERATE CLOSED CONTAINERS. INCINERATE IN APPROVED FACILITY.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:

DO NOT BREATHE VAPORS OR SPRAY MIST. WEAR AN APPROPRIATE, PROPERLY FITTED RESPIRATOR (NIOSH/MSHA APPROVED) DURING APPLICATION AND OTHER USE OF THIS PRODUCT UNTIL VAPORS AND MISTS ARE EXHAUSTED, UNLESS AIR MONITORING DEMONSTRATES VAPOR AND MIST LEVELS ARE BELOW APPLICABLE LIMITS. FOLLOW RESPIRATOR MANUFACTURER'S DIRECTIONS FOR RESPIRATOR USE. USE APPROVED CHEMICAL/MECHANICAL FILTERS DESIGNED TO REMOVE A COMBINATION OF PARTICLES AND VAPORS. IN CONFINED AREAS, USE APPROVED AIR SUPPLIED RESPIRATORS OR HOODS. OBSERVE OSHA STANDARD 29CFR 1910.134.

VENTILATION:

PROVIDE GENERAL CLEAN AIR DILUTION OR LOCAL EXHAUST VENTILATION IN VOLUME AND PATTERN TO KEEP THE AIR CONTAMINANT CONCENTRATION BELOW THE LOWER EXPLOSION LIMIT AND BELOW CURRENT APPLICABLE EXPOSURE LIMITS IN THE MIXING, APPLICATION AND CURING AREAS; AND TO REMOVE DECOMPOSITION PRODUCT DURING WELDING AND FLAME CUTTING ON SURFACES COATED WITH THIS PRODUCT. IN CONFINED AREAS, USE ONLY WITH FORCED VENTILATION ADEQUATE TO KEEP VAPOR CONCENTRATION BELOW 20% OF LOWER EXPLOSION LIMITS. REFER TO OSHA STANDARDS 29CFR 1910.94, 1910.107, 1910.108.

NOTE: HEAVY SOLVENT VAPORS SHOULD BE REMOVED FROM LOWER LEVELS OF THE WORK AREA AND ALL IGNITION SOURCES (NONEXPLOSION-PROOF MOTORS, ETC.) SHOULD BE ELIMINATED.

PROTECTIVE GLOVES: USE SOLVENT IMPERMEABLE GLOVES TO AVOID CONTACT WITH PRODUCT

EYE PROTECTION:

DO NOT GET IN EYES. USE SAFETY EYEWEAR WITH SPLASH GUARDS OR SIDE SHIELDS, CHEMICAL GOGGLES, FACE SHIELDS.

OTHER PROTECTIVE EQUIPMENT:

AVOID CONTACT WITH SKIN. USE PROTECTIVE CLOTHING. PREVENT CONTACT WITH CONTAMINATED CLOTHING. WASH CONTAMINATED CLOTHING, INCLUDING SHOES, BEFORE REUSE.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:

DO NOT STORE ABOVE 120 DEG. F. STORE LARGE QUANTITIES IN BUILDINGS DESIGNED TO COMPLY WITH OSHA 1910.106. KEEP AWAY FROM HEAT, SPARKS AND FLAME. KEEP CONTAINERS CLOSED WHEN NOT IN USE AND UPRIGHT TO PREVENT LEAKAGE.

OTHER PRECAUTIONS:

CONTAINERS SHOULD BE GROUNDED WHEN POURING. DO NOT TAKE INTERNALLY. WASH HANDS AFTER USING AND BEFORE SMOKING OR EATING. EMPTIED CONTAINERS MAY RETAIN HAZARDOUS RESIDUE AND EXPLOSIVE VAPORS. KEEP AWAY FROM HEAT, SPARKS AND FLAMES. DO NOT CUT, PUNCTURE OR WELD ON OR NEAR EMPTIED CONTAINERS. FOLLOW ALL HAZARD PRECAUTIONS GIVEN IN THIS DATA SHEET UNTIL CONTAINER IS THOROUGHLY CLEANED OR DESTROYED. IF THIS PRODUCT IS BLENDED WITH OTHER COMPONENTS SUCH AS THINNERS, CONVERTER, COLORANTS AND CATALYSTS PRIOR TO USE, READ ALL WARNING LABELS. ANY MIXTURE OF COMPONENTS WILL HAVE HAZARDS OF ALL COMPONENTS. FOLLOW ALL PRECAUTIONS. IF SPRAYING THIS MATERIAL, KEEP SPRAY BOOTHS CLEAN. DID BUILDUP OF SPRAY DUST OR OVERSPRAY IN BOOTHS OR DUCTS.

KEEP OUT OF REACH OF CHILDREN

FOR INDUSTRIAL USE ONLY

MATERIAL SAFETY DATA SHEET

PRODUCT CODE IDENTITY: 829R311

PRODUCT NAME: WA12EN8781 GARNET HI/S EN

SECTION X - SARA TITLE III INFORMATION

THIS PRODUCT CONTAINS THE FOLLOWING TOXIC CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF SARA TITLE III EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986 AND OF 40 CFR PART 372.

CHEMICAL NAME	CAS NUMBER	% BY WEIGHT
N-BUTYL ALCOHOL	000071-36-3	6.4230
TOLUENE	000108-88-3	4.4030
BARIUM SULPHATE, 59% BARIUM (BA)	007727-43-7	5.2350
1, 2, 4 TRIMETHYLBENZENE	000095-63-6	4.5690
METHYL ETHYL KETONE	000078-93-3	3.1680

THIS LAW REQUIRES CERTAIN MANUFACTURERS TO REPORT ON ANNUAL EMISSIONS OF SPECIFIED TOXIC CHEMICALS AND CHEMICAL CATEGORIES. IF YOU ARE UNSURE IF YOU MUST REPORT OR REQUIRE MORE INFORMATION, CALL THE EPA EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW HOT LINE: 800-535-0202 OR 202-479-2449.

DISCLAIMER AND LIMITATION OF LIABILITY

TO THE BEST OF OUR KNOWLEDGE, THE INFORMATION CONTAINED HEREIN IS ACCURATE. THE WARRANTY DESCRIBED HEREIN SHALL BE IN LIEU OF ANY OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. THE BUYER'S SOLE AND EXCLUSIVE REMEDY AGAINST SELLER SHALL BE FOR THE REPLACEMENT OF THE PRODUCTS OR REFUND OF THE PURCHASE PRICE IN THE EVENT THAT A DEFECTIVE CONDITION OF THE PRODUCTS SHOULD BE FOUND TO EXIST. NO OTHER REMEDY (INCLUDING, BUT NOT LIMITED TO, INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR LOST PROFITS, LOST SALES, INJURY TO PERSON OR PROPERTY, OR ANY OTHER INCIDENTAL OR CONSEQUENTIAL LOSS) SHALL BE AVAILABLE TO THE BUYER. THE SOLE PURPOSE OF THIS EXCLUSIVE REMEDY SHALL BE TO PROVIDE BUYER WITH REPLACEMENT OF THE PRODUCTS OR REFUND OF THE PURCHASE PRICE OF THE PRODUCTS IF ANY DEFECT IN MATERIALS OR WORKMANSHIP IS FOUND TO EXIST. THIS EXCLUSIVE REMEDY SHALL NOT BE DEEMED TO HAVE FAILED ITS ESSENTIAL PURPOSE SO LONG AS SELLER IS WILLING AND ABLE TO REPLACE THE DEFECTIVE PRODUCTS OR REFUND THE PURCHASE PRICE. BUYER MUST GIVE SELLER NOTICE IN WRITING OF ANY ALLEGED DEFECT COVERED BY THIS WARRANTY (TOGETHER WITH ALL IDENTIFYING DETAILS, INCLUDING THE PRODUCT CODE(S), DESCRIPTION AND DATE OF PURCHASE) WITHIN THIRTY (30) DAYS OF THE DISCOVERY OF SUCH DEFECT. FINAL DETERMINATION OF THE SUITABILITY OF THE MATERIAL FOR THE USE CONTEMPLATED, THE MANNER OF USE AND WHETHER THE SUGGESTED USE INFRINGES ANY PATENTS IS THE SOLE RESPONSIBILITY OF THE BUYER.

Health	2
Flammability	4
Reactivity	0
Personal Protection	A

HMIS Ratings

BOWMAN DISTRIBUTION MATERIAL SAFETY DATA SHEET

Health	2
Flammability	4
Reactivity	0
Specific Hazard	

NFPA Ratings

SECTION I

PRODUCT NAME GASKET CEMENT		BOWMAN PART NO. 21902 (page 1 of 2)
SUPPLIER Bowman Distribution, Barnes Group Inc.		EMERGENCY TELEPHONE NO. (216) 391-7200
ADDRESS 850 East 72nd Street, Cleveland, OH 44103		DATE 1-23-90
HAZARDOUS MATERIAL DESCRIPTION, PROPER SHIPPING NAME, HAZARD CLASS, HAZARD ID NO. (49 CFR 172.101) Consumer Commodity ORM-D UN-1954		
ADDITIONAL HAZARD CLASSES (as applicable) None		
CHEMICAL FAMILY Mixture	FORMULA TM-2212	

SECTION II - HAZARDOUS INGREDIENTS

CAS REGISTRY NUMBER	%W	%V	CHEMICAL NAME(S)	PPM OSHA PEL	PPM ACGIH TLV	STEL Other Limits	Listed as Carcinogen NTP, IARC or OSHA 1910(z) (specify)
75-09-2	63		*Methylene Chloride	500	50	N.E.	Yes
110-54-3	<2		Hexane	500	50	N.E.	No
108-88-3	<2		*Toluene	200	100	150	No
141-78-5	<2		Ethyl Acetate	400	400	500	No
7440-50-8	<2		*Copper	N.E.	1mg/m ³ dust	N.E.	No
74-98-6	25		Propane/isobutane	1000	1000	asphyxiant	No
	>4		Non Hazardous				

The acceptable ceiling concentration for Methylene Chloride is 1000 ppm. The acceptable maximum peak above the acceptable ceiling concentration for an 8 hour shift is 2000 ppm for 5 minutes in any 2 hours for Methylene Chloride.

ALL CHEMICAL COMPOUNDS MARKED WITH AN ASTERISK () ARE TOXIC CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF TITLE III OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) OF 1986 AND 40 CFR PART 372.

SECTION III - PHYSICAL DATA

BOILING POINT -40°-105 °F _____ °C	SPECIFIC GRAVITY (H ₂ O = 1) 0.9		
VAPOR PRESSURE 60 @ 70 °F _____ °C _____ mm Hg <input checked="" type="checkbox"/> psi	PERCENT VOLATILE BY VOLUME (%) N.E.	PERCENT SOLID BY WEIGHT (%)	N.E.
VAPOR DENSITY (AIR = 1) Heavier than air 4.0	EVAPORATION RATE (BuAc = 1) >5		
SOLUBILITY IN WATER NIL	PH = N.A.		
APPEARANCE AND ODOR Copper/solvent odor	MATERIAL IS: LIQUID & GAS		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT -40 °F _____ °C	method used T.C.C.	FLAMMABLE LIMITS	LEL 1.8	UEL 12.0
EXTINGUISHING MEDIA Use water fog, dry chemical or carbon dioxide.				
SPECIAL FIRE FIGHTING PROCEDURES Aerosol cans may rupture when heated.				
UNUSUAL FIRE AND EXPLOSION HAZARDS Heated cans may burst.				

21902 (page 1 of 2)

N.A. - Not Applicable
N.E. - Not Established
N.D. - Not Determined

TRW-01191

0908-2561

SECTION V - HEALTH HAZARD DATA

HEALTH HAZARDS (ACUTE AND CHRONIC - INCLUDE TARGET ORGAN EFFECTS)	
May cause dizziness or narcosis in high vapor concentrations. Will cause defatting of skin. Effects are reversible. Long term exposure (years) to vapors may cause lung, liver or kidney damage. The solvents listed have been reported to affect the central nervous system. The acceptable ceiling concentration for Toluene is 300 ppm. Acceptable maximum peak above the acceptable ceiling concentration for an 8 hour shift is 500 ppm for 10 minutes for Toluene. Methylene Chloride will have an affect on cardiovascular system. High concentrations of Methylene Chloride vapor over long periods of time (years) have produced tumors in laboratory animals.	
CONDITIONS TO AVOID	
See above.	
SIGNS AND SYMPTOMS OF OVEREXPOSURE	
Inhalation - difficulty in breathing. Skin - redness. Ingestion - vomiting.	
PRIMARY ROUTES OF ENTRY Inhalation <input checked="" type="checkbox"/> Skin Contact <input checked="" type="checkbox"/> Other (specify)	
Ingestion	
EMERGENCY AND FIRST AID PROCEDURES	
Give oxygen - do not induce vomiting. Gastric lavage. Wash eyes and skin with water.	
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE	
Heart disease, respiratory disorders.	

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	<input checked="" type="checkbox"/>	High temperatures.
INCOMPATIBILITY (materials to avoid)			
Methylene Chloride will react with active metals. The above solvents are incompatible with strong oxidizers.			
HAZARDOUS DECOMPOSITION PRODUCTS:			
In fire will decompose to carbon dioxide and water.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	<input checked="" type="checkbox"/>	None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
Use absorbent sweeping compound to soak up material. Put into container. Dispose as hazardous waste.	
WASTE DISPOSAL METHOD	
Dispose as hazardous waste in accordance with EPA RCRA.	
CERCLA (Superfund) REPORTABLE QUANTITY (in lbs.)	
N.E.	
RCRA HAZARDOUS WASTE NO. (40 CFR 261.33)	
D-001	
VOLATILE ORGANIC COMPOUND (VOC) as packaged, minus water)	<input checked="" type="checkbox"/> Theoretical <u>7.7</u> lb/gal <input type="checkbox"/> Analytical _____ lb/gal
>90%	

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (specify type)		
Self contained breathing apparatus if TLV limit is exceeded.		
VENTILATION	LOCAL EXHAUST (specify rate)	SPECIAL
	Yes - provide sufficient ventilation to maintain exposure below TLV.	None
	MECHANICAL (general) (specify rate)	OTHER
	None	None
PROTECTIVE GLOVES (specify type)		EYE PROTECTION (specify type)
None required if spraying.		Wear eye protection.
OTHER PROTECTIVE EQUIPMENT		
Long sleeves and long pants.		

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
Keep away from heat, sparks or open flame. Store at temperatures below 120°F.	
OTHER PRECAUTIONS	TRW-01192
None	

*All Maint
Dept 250*

BOWMAN DISTRIBUTION MATERIAL SAFETY DATA SHEET

SECTION I

PRODUCT NAME GASKET CEMENT (COPPER GASKET CEMENT)		BOWMAN PART NO. 21902, 21902-2 (page 1 of 2)
SUPPLIER Bowman Distribution, Barnes Group Inc.		EMERGENCY TELEPHONE NO. (216) 391-7200
ADDRESS 850 East 72nd Street, Cleveland, OH 44103		DATE 3/30/88
HAZARDOUS MATERIAL DESCRIPTION, PROPER SHIPPING NAME, HAZARD CLASS, HAZARD ID NO. (49 CFR 172.101) Consumer Commodity, ORM-D, UN		
ADDITIONAL HAZARD CLASSES (as applicable) None		
CHEMICAL FAMILY Pressurized Product	FORMULA TM-2212	

SECTION II - HAZARDOUS INGREDIENTS

CAS REGISTRY NO.	%W	%V	CHEMICAL NAME(S)	Listed as a Carcinogen in NTP, IARC or OSHA 1910(z) (specify)
75-09-2	64.0		Methylene Chloride	None
74-98-6	17.0		Propane	None

SECTION III - PHYSICAL DATA

BOILING POINT _____°F _____°C N.A.	SPECIFIC GRAVITY (H ₂ O = 1) N.A.		
VAPOR PRESSURE 140 @ 130 °F _____°C <input type="checkbox"/> mm Hg <input checked="" type="checkbox"/> psi	PERCENT VOLATILE BY VOLUME (%) 89	PERCENT SOLID BY WEIGHT (%) 25	
VAPOR DENSITY (AIR = 1) 4.0	EVAPORATION RATE (_____ = 1) N.A.		
SOLUBILITY IN WATER N.A.	pH = _____ None		
APPEARANCE AND ODOR Copper and solvent (21902 - 6 oz., 21902-2 - 12-3/4 oz.)		MATERIAL IS: LIQUID GAS	

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT -40 °F _____°C method used TCC	FLAMMABLE LIMITS None	LEL 1.8	UEL 12.0
EXTINGUISHING MEDIA Waterfog, Foam CO₂, or Dry Chemical			
SPECIAL FIRE FIGHTING PROCEDURES Keep containers cool. Use equipment or shielding required to protect personnel against bursting or venting containers.			
UNUSUAL FIRE AND EXPLOSION HAZARDS At elevated temperatures (130° or over) containers may vent, rupture or burst.			

21902, 21902-2 (page 1 of 2)

TRW-01193

SECTION V - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE - Conditions to avoid May cause dizziness or in extreme case absence of oxygen could produce narcosis.	THRESHOLD LIMIT VALUE 100PPM
	PERMISSIBLE EXPOSURE LIMIT
	OTHER LIMIT
PRIMARY ROUTES OF ENTRY Inhalation <input checked="" type="checkbox"/> Skin Contact <input checked="" type="checkbox"/> Other (specify)	
EMERGENCY AND FIRST AID PROCEDURES If unconscious, remove person to fresh air and call a physician. If sprayed in eyes, flush immediately with large quantities of water.	

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Pressurized containers could rupture above 130° F.
INCOMPATIBILITY (materials to avoid) None			
HAZARDOUS DECOMPOSITION PRODUCTS: (from burning) Carbon dioxide, carbon monoxide and water.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Flush with large quantities of water. Ventilate area.	
WASTE DISPOSAL METHOD Do not puncture or incinerate containers. Give to a disposal service equipped to safely handle and dispose of pressurized containers.	
CERCLA (Superfund) REPORTABLE QUANTITY (in lbs) Unknown	
RCRA HAZARDOUS WASTE NO. (40 CFR 261.33) D-001	
VOLATILE ORGANIC COMPOUND (VOC) (as packaged, minus water) Unknown	
<input type="checkbox"/> Theoretical _____ lb/gal	<input type="checkbox"/> Analytical _____ lb/gal

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (specify type) Avoid breathing concentrated vapors or particles from all products not specifically designed to be inhaled.		
VENTILATION	LOCAL EXHAUST (specify rate) normal use — normal ventilation	SPECIAL none
	MECHANICAL (general) (specify rate)	OTHER
PROTECTIVE GLOVES (specify type) N.A.		EYE PROTECTION (specify type) Safety glasses required
OTHER PROTECTIVE EQUIPMENT None		

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Read and follow cautions on product label. Do not store in temperatures above 120° F.	
OTHER PRECAUTIONS None	

Health	2
Flammability	4
Reactivity	0
Personal Protection	B

HMIS Ratings

BOWMAN DISTRIBUTION MATERIAL SAFETY DATA SHEET

Health	2
Flammability	4
Reactivity	0
Specific Hazard	

NFPA Ratings

SECTION I

PRODUCT NAME GASKET DECAL & PAINT REMOVER		BOWMAN PART NO. 19475 (page 1 of 2)
SUPPLIER Bowman Distribution, Barnes Group Inc.		EMERGENCY TELEPHONE NO. (216) 391-7200
ADDRESS 850 East 72nd Street, Cleveland, OH 44103		DATE 1/22/90
HAZARDOUS MATERIAL DESCRIPTION, PROPER SHIPPING NAME, HAZARD CLASS, HAZARD ID NO. (49 CFR 172.101) Consumer Commodity ORM-D UN-1954		
ADDITIONAL HAZARD CLASSES (as applicable) None		
CHEMICAL FAMILY Mixture	FORMULA TM-1206B	

SECTION II - HAZARDOUS INGREDIENTS

CAS REGISTRY NUMBER	%W	%V	CHEMICAL NAME(S)	OSHA PEL	ACGIH TLV	STEL Other Limits	Listed as Carcinogen NTP, IARC or OSHA 1910(z) (specify)
75-09-2	66		*Methylene Chloride	500	50	N.E.	Yes
67-56-1	6		*Methyl Alcohol	200	200	250	No
74-98-6	18		Propane/Isobutane	1000	1000	Asphyxiant	No
	10		Non-Hazardous				

The acceptable ceiling concentration for Methylene Chloride is 1000 ppm. The acceptable maximum peak above the acceptable ceiling concentration for an 8 hour shift is 2000 ppm for 5 minutes in any 2 hours for Methylene Chloride.

This product will cause redness to the skin and severe burning of the eyes. Wear non-porous gloves and safety glasses while using.

ALL CHEMICAL COMPOUNDS MARKED WITH AN ASTERISK () ARE TOXIC CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF TITLE III OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) OF 1986 AND 40 CFR PART 372.

SECTION III - PHYSICAL DATA

BOILING POINT -40°F - 150 °F _____ °C	SPECIFIC GRAVITY (H ₂ O = 1) 1.2		
VAPOR PRESSURE @ 70 °F _____ °C <input type="checkbox"/> mm Hg <input checked="" type="checkbox"/> psi	PERCENT VOLATILE BY VOLUME (%) 100	PERCENT SOLID BY WEIGHT (%)	N.A.
VAPOR DENSITY (AIR = 1) Heavier than air.	4.0	EVAPORATION RATE (= 1) Butyl Acetate	>1
SOLUBILITY IN WATER NIL	PH =	N.A.	
APPEARANCE AND ODOR Clear/Solvent odor		MATERIAL IS: LIQUID & GAS	

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT -40° °F _____ °C	method used T.C.C.	FLAMMABLE LIMITS	LEL 1.8	UEL 12.0
EXTINGUISHING MEDIA Use water fog, dry chemical or carbon dioxide.				
SPECIAL FIRE FIGHTING PROCEDURES Aerosol cans may rupture when heated.				
UNUSUAL FIRE AND EXPLOSION HAZARDS Heated cans may burst.				

19475 (page 1 of 2)

N.A. - Not Applicable
N.E. - Not Established
N.D. - Not Determined

TRW-01195

0908-2565

SECTION V - HEALTH HAZARD DATA

HEALTH HAZARDS (ACUTE AND CHRONIC - INCLUDE TARGET ORGAN EFFECTS)	
May cause dizziness or narcosis in high vapor concentrations. Will cause defatting of skin. Effects are reversible. Long term exposure (years) to vapor may cause lung, liver or kidney damage. The solvents listed have been reported to affect the central nervous system. Methylene Chloride will have an effect on cardiovascular system. High concentrations of Methylene Chloride vapor over long periods of	
CONDITIONS TO AVOID	time (years) have produced tumors in laboratory animals.
See above.	
SIGNS AND SYMPTOMS OF OVEREXPOSURE	
Inhalation - difficulty in breathing. Skin redness. Ingestion - vomiting.	
PRIMARY ROUTES OF ENTRY	Inhalation <input checked="" type="checkbox"/> Skin Contact <input checked="" type="checkbox"/> Other (specify)
Ingestion	
EMERGENCY AND FIRST AID PROCEDURES	
Give oxygen - do not induce vomiting. Gastric lavage. Wash eyes and skin with water.	
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE	
Heart disease, respiratory disorders.	

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE		<input checked="" type="checkbox"/> High temperatures
INCOMPATIBILITY (materials to avoid)			
Methylene Chloride will react with active metals. The above solvents are incompatible with strong oxidizers.			
HAZARDOUS DECOMPOSITION PRODUCTS:			
In fire will decompose to carbon dioxide and water, halogen and phosgene.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR		<input checked="" type="checkbox"/> None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
Use absorbent sweeping compound to soak up material. Put into container. Dispose as hazardous waste.	
WASTE DISPOSAL METHOD	
Dispose as hazardous waste in accordance with EPA RCRA	
CERCLA (Superfund) REPORTABLE QUANTITY (in lbs.)	
N.E.	
RCRA HAZARDOUS WASTE NO. (40 CFR 261.33)	
D-001	
VOLATILE ORGANIC COMPOUND (VOC) as packaged, minus water)	<input checked="" type="checkbox"/> Theoretical <u>8.7</u> lb/gal <input type="checkbox"/> Analytical _____ lb/gal
100%	

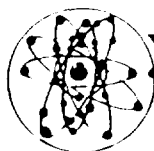
SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (specify type)		
Self contained breathing apparatus if TLV limit is exceeded.		
VENTILATION	LOCAL EXHAUST (specify rate)	SPECIAL
	Provide sufficient ventilation to maintain exposure below TLV.	None
	MECHANICAL (general) (specify rate)	OTHER
	None	None
PROTECTIVE GLOVES (specify type)		EYE PROTECTION (specify type)
None required if spraying.		Wear eye protection.
OTHER PROTECTIVE EQUIPMENT		
Long sleeves and long pants.		

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
Keep away from heat, sparks or open flame. Store at temperatures below 120°F.	
OTHER PRECAUTIONS	
None	

TRW-01196

**HUSSEY COPPER LTD.**BY: HUSSEY COPPER CORP., GENERAL PARTNER
LEETSDALE, PA 15056

M.S.D.S. HC-85-200

DATE: 3/26/85

REV. DATE: 4/21/86

REVISION NO.: 2

MATERIAL SAFETY DATA SHEET**SECTION I**

MANUFACTURER'S NAME: HUSSEY COPPER LTD.
ADDRESS: Washington Street LEETSDALE, PA. 15056
EMERGENCY PHONE NO.: 412-857-4200
CHEMICAL NAME AND SYNONYMS: COPPER/ZINC
TRADE NAME AND SYNONYMS: Gilding, commercial bronze, red brass, low brass, cartridge brass, yellow brass. CDA Alloy 210, 220, 226, 230, 240, 260, 268
CHEMICAL FAMILY: COPPER AND ZINC

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	PERCENT	CAS NO.	OSHA-PEL/ACGIH-TLV
Copper	96.0 to 65.0	7440-50-8	Exposure Levels See Section V
Zinc	4.0 to 35.0	7440-66-6	

HAZARDOUS MIXTURES OF OTHERS LIQUIDS, SOLIDS, OR GASES:

If exposure to copper and zinc dust/fume are kept below Permissible Exposure Limits (PEL)/Threshold Limit Value (TLV) all trace elements should not pose any health risk.

SECTION III - PHYSICAL DATA

ALLOY	210	220	226	230	240	260	268
MELTING	1920	1870	1840	1810	1770	1680	1660
Vapor Pressure (mm Hg.)	Not applicable						
Solubility in Water	negligible						
Specific Gravity (H ² O = 1)	8.86	8.80	8.78	8.75	8.67	8.53	8.47

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point (Method Used)	Not applicable*
Extinguishing Media	Not Applicable
Special Fire Fighting Procedures	Not applicable
Unusual Fire and Explosion Hazards	Not applicable

TRW-01197

* Under normal conditions. Heavy concentrations of fine copper dust may cause flash fire if exposed to ignition source.

0908-2567

SECTION V - HEALTH HAZARD DATA

EXPOSURE LEVELS: Copper dusts and mists - OSHA (PEL): TWA= 1MG/M³. ACGIH (TLV): TWA= 1 MG/M³
Copper fume - OSHA (PEL): TWA= 0.1 MG/M³. ACGIH (TLV): TWA= 0.2 MG/M³.
Zinc oxide fume - OSHA (PEL): TWA= 5 MG/M³. ACGIH (TLV): TWA= 5 MG/M³.
STEL= 10 MG/M³. Zinc oxide dust - ACGIH (TLV) TWA= 10 MG/M³ of total dust.

CARCINOGENICITY: Not listed as a carcinogenic in NTP or IARC monographs.

EFFECT OF OVERDOSE: Fume and dust - sneezing, cough, congestion, nausea, metallic tastes, chills, fever, muscular pain, marked thirst.

EMERGENCY AND FIRST AID PROCEDURES:
Skin: Flush thoroughly with water. Eyes - flush with water, call Physician.
Ingestion - drink water induce vomiting, call Physician. Inhalation - remove victim to fresh air, call Physician.
Copper and Zinc Fume, dusts and mists are listed by OSHA as air contaminants.

PRIMARY ROUTE(S) OF ENTRY: Inhalation

SECTION VI - REACTIVITY DATA

STABILITY - Stable

INCOMPATIBILITY (material to avoid): (Dust & Fume) acetylene, chlorine

HAZARDOUS DECOMPOSITION PRODUCTS : Copper Fume & dust/Zinc Fume & dust

HAZARDOUS POLYMERIZATION - Will Not Occur

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

Dust or Fume - wear respirator follow OSHA use instructions, shovel up, or vacuum and place in approved DOT container and seal. Wash contaminated clothing.

WASTE DISPOSAL METHOD:

Dispose of contaminated product and materials used in cleaning up spills or leaks in a manner approved for this material. Follow federal, state and local regulations for disposal.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify Type) : dust or fume - NIOSH/MSHA approved
dust/fume respirator

VENTILATION - Local Exhaust: dust/fume - if exposure levels exceeded.

EYE PROTECTION: (dust) goggles

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Avoid breathing dust or fumes. Do not take internally.
Preclude from exposure to fume and dust those individuals with pulmonary and cardiac diseases.



OCEAN® Network

EMERGENCY PHONE 1-800-OLIN-911

**MATERIAL
SAFETY DATA****SECTION I - IDENTIFICATION**

CHEMICAL NAME & SYNONYMS Gilding Copper, 95%		
CHEMICAL FAMILY Copper	FORMULA Mixture	TRADE NAME Alloy 210
DESCRIPTION Metal		CAS NO. Not assigned/mixture

SECTION II - NORMAL HANDLING PROCEDURES

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE Precautions needed for abrasive, melting or other operations generating a dust or fume. Do not get dust or fume in eyes, on skin or on clothing. Do not take internally. Wash thoroughly with soap and water before eating or smoking. Avoid breathing dust or fumes.		
PROTECTIVE EQUIPMENT		VENTILATION REQUIREMENTS
Eyes Gloves Other	Goggles Impervious NIOSH/MSHA approved high efficiency particulate respirator if excessive dusting/fumes occur	As required to keep airborne concentrations below TLV for copper and zinc.

SECTION III - HAZARDOUS INGREDIENTS

BASIC MATERIAL	OSHA PEL	LD 50	LC 50	SIGNIFICANT EFFECTS
Copper	Dust 1 mg/m ³ Fume 0.1 mg/m ³	TD _{LO} 120 ug/kg (human)	No data	Metal fume fever, respiratory irritation
Zinc	Fume 5 mg/m ³	No data	TC _{LO} 124 mg/m ³ /50 min. (human)	Metal fume fever

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT METHOD Not Applicable	OSHA CLASSIFICATION Non-combustible solid	FLAMMABLE EXPLOSIVE LIMITS	LOWER N/A	UPPER N/A
EXTINGUISHING MEDIA Use extinguishing media suitable for surrounding materials.				
SPECIAL FIRE HAZARD & FIRE FIGHTING PROCEDURES Use NIOSH/MSHA approved positive pressure self-contained breathing apparatus when any material is involved in a fire.				

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE		None established for mixture (copper fume 0.2 mg/m ³ , zinc fume 5 mg/m ³ ACGIH 1985-86).
5 mg/m ³ ACGIH 1985-86).		
SYMPTOMS OF OVER EXPOSURE		
Dust and fume - sneezing, congestion, metallic taste, nausea, chills, fever.		
SKIN	Dust or fume: Wash with soap and water before eating or smoking. If an irritation develops, call a physician.	
	EMERGENCY FIRST-AID PROCEDURES	
EYES	Dust or fume: Flush thoroughly with water for 15 minutes. Call a physician.	
INGESTION	Dust: Not a likely route of exposure. If ingested, call a physician.	
INHALATION	Dust or Fume: Remove victim to fresh air. Call a physician.	

Chemical

CAS No.

TRW-01199

0908-2569

SECTION VI - TOXICOLOGY (Product)

ACUTE ORAL LD 50	No data for alloy	CARCINOGENICITY	Not known to be carcinogenic
ACUTE DERMAL LD 50	No data for alloy	MUTAGENICITY	Not known to be mutagenic
ACUTE INHALATION LC 50	No data for alloy	EYE IRRITATION	Dust is irritating
		PRIMARY SKIN IRRITATION	Dust may be an irritant
PRINCIPAL ROUTES OF ABSORPTION			
Inhalation of dust or fume			
EFFECTS OF ACUTE EXPOSURE			
Metal fume fever (chills, fever, nausea), respiratory irritation			
EFFECTS OF CHRONIC EXPOSURE			
None expected under normal industrial use conditions. Chronic overexposure may cause kidney and liver effects			

SECTION VII - SPILL AND LEAKAGE PROCEDURES (Control Procedures)

ACTION FOR MATERIAL RELEASE OR SPILL	
Dust or Fume: Wear NIOSH/MSHA approved high efficiency particulate respirator. Follow OSHA regulations for respirator use (See 29 CFR 1910.134). Wear goggles, coveralls, impervious gloves and boots. Shovel or sweep up and place in an appropriate container. Wash all contaminated clothing before reuse.	
In the event of a large spill, use the emergency telephone number shown on the front of this sheet.	
TRANSPORTATION EMERGENCY, CONTACT CHEMTREC 800-424-9300	
WASTE DISPOSAL METHOD	
Dispose of contaminated product, empty containers and materials used in cleaning up spills or leaks in a manner approved for this material. Consult appropriate federal, state and local regulatory agencies to ascertain proper disposal procedures.	

SECTION VIII - SHIPPING DATA

D.O.T. CLASS	Not regulated
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SECTION IX - REACTIVITY DATA

STABLE <input checked="" type="checkbox"/> UNSTABLE <input type="checkbox"/>	AT _____ °C _____ °F	HAZARDOUS POLYMERIZATION	MAY OCCUR
			WILL NOT OCCUR <input checked="" type="checkbox"/>
CONDITIONS TO AVOID Presence of carbon monoxide during melting			
INCOMPATIBILITY (Material to Avoid) (dust and fume) acetylene, chlorine			
HAZARDOUS DECOMPOSITION PRODUCTS copper fume, zinc oxide fume			

SECTION X - PHYSICAL DATA

MELTING POINT	1950°F	VAPOR PRESSURE	N/A	VOLATILES	N/A
BOILING POINT	No data	SOLUBILITY IN WATER	Insoluble	EVAPORATION RATE	N/A
SPECIFIC GRAVITY (H ₂ O = 1) *		pH	N/A	VAPOR DENSITY (Air = 1)	N/A
*DENSITY	0.32 lbs./in ³				

INFORMATION FURNISHED BY: Environmental Hygiene
and Toxicology
(203) 789-5436

DATE March 20, 1986

TRW-01200

Department of Environmental Hygiene and Toxicology
(203) 789-5436

Olin CORPORATION

120 Long Ridge Road, Stamford, Connecticut 06904

OCEAN® Network

EMERGENCY PHONE 1-800-OLIN-911

GILDRAW 2100**A LIGHT VISCOSITY FLUID FOR LIGHT TO HEAVY DRAWING
OF NON-FERROUS, SPECIFICALLY, CUPROUS ALLOYS**

Formulated to be used as received, GILDRAW 2100 can be diluted with water depending on the severity of the operation. GILDRAW 2100 has special inhibitors to retard or eliminate discoloration of cuprous alloys. GILDRAW 2100 is easily cleaned in aqueous cleaners at ambient to 160°F.

ADVANTAGES

- * Petroleum and oil free
- * Easily cleaned in alkaline cleaners
- * Inhibited to retard cuprous metal discoloration
- * Water dilutable but formulated to be used as received
- * Contains no chlorine or sulphur

TECHNICAL PROPERTIES (TYPICAL)

APPEARANCE:	Light yellow liquid
ODOR:	Sweet
SPECIFIC GRAVITY:	1.0
pH of 10 %:	9.5
FLASH POINT:	> 200° F

dl21/491

"TOTAL CAPABILITIES"**SPECIALTY CHEMICALS****PAINTS****EQUIPMENT**

All other recommendations and suggestions are provided as they are believed to be based upon tests and data obtained from our laboratories. We do not warrant, represent, or guarantee the results of any operation conducted using our products. The use of our products by others is their responsibility and we make no guarantee, representation, or warranty as to the results to be obtained. It is only a suggestion to be construed as a recommendation to infringe any patent.

GILDRAW 2100

USE AND CONTROL INSTRUCTIONS

Dilution depends on severity of operation. GILDRAW 2100 may be used as received or may be diluted up to 10% product to water, therefore dilution ranges of 10% to 100% may be applicable.

NOTE: GILDRAW 2100 is not recommended for galvanized metals and may slightly darken some aluminum. It is recommended to soak test before using on any of these materials.

TITRATION:	<u>DROP</u>	<u>BURET</u>
SAMPLE SIZE:	10 ML	10 ML
INDICATOR:	Brom Phenol Blue	Brom Phenol Blue
TITRANT:	1.0N Acid	0.1N Acid
COLOR CHANGE:	Blue to yellow/green	Blue to yellow/green
FACTOR:	Drops 1.0N Acid x 0.65 = % by vol.	mls 0.1N Acid x 1.46 =
REFRACTOMETER:	3.3 x Brix Reading = % by volume	% by volume

PRECAUTIONS

CAUTION: May cause irritation to the eyes and skin. Ingestion may cause stomach distress. Inhalation may cause respiratory irritation. Wear appropriate protective equipment when using this material.

KEEP OUT OF THE REACH OF CHILDREN

FIRST AID:

EXTERNAL: Immediately flush skin with plenty of cool, running water for at least 15 minutes; then wash thoroughly with soap and water. Remove contaminated clothing and wash before reuse.

EYES: Immediately flush with plenty of cool, running water. Remove contact lenses, if applicable. Continue flushing for at least 15 minutes, holding eyelids apart.

INTERNAL: Call a physician immediately. If swallowed, **DO NOT** induce vomiting. Rinse mouth; then immediately drink 1 to 2 large glasses of water or milk. Never give anything to an unconscious person.

INHALATION: Move immediately to fresh air. Aid in breathing if necessary and get medical attention immediately if needed.

GET MEDICAL ATTENTION IMMEDIATELY

EMERGENCY 24 HOUR CHEMTREC NUMBER (1) 800 - 424 - 9300

CONSULT MATERIAL SAFETY DATA SHEET FOR ADDITIONAL HEALTH AND SAFETY INFORMATION

SPILLS, LEAKS AND DISPOSAL: Use adequate safety equipment; see precautions above. Contain spill and recover clean material. Soak up with inert absorbent and place in approved disposal container. Dispose in accordance with local, state and federal regulations.

STORAGE: Keep container tightly closed when not in use. Avoid breathing spray or mist. Store in cool, dry, clean location.



CORPORATE OFFICE
CLEVELAND, OHIO
1-800-627-6422

TRW-01202



Man-GILL CHEMICAL

23000 ST. CLAIR AVE. • CLEVELAND, OHIO 44117 • 800-627-6422
EMERGENCY 24 HOUR CHEMTREC NO. 800-424-9300

MATERIAL SAFETY DATA SHEET

36153

Section I

Identity
GILDRAW 2100

Date Prepared 11/23/93

Date Revised 05/07/93

NFPA CODE:

HEALTH: 1

FLAMMABILITY: 0

REACTIVITY: 0

Section II - Hazardous Ingredients

Hazardous Ingredients

SARA 313

CAS #

OSHA - PEL

ACGIH TLV-TWA

Other Hazard

SODIUM TOLYLTRIAZOLE
ETHOXYLATED NONYLPHENOL

64665-57-2 N/E

N/E

CORROSIVE,

9016-45-9

NOT ESTABLISHED

IRRITANT

NO COMPONENT WAS FOUND TO BE CARCINOGENIC IN NTP, IARC OR OSHA

Section III - Physical/Chemical Characteristics

Boiling Point

> 212 DEG F

Specific Gravity (H2O=1)

1.03

Vapor Pressure (mm Hg)

NOT DETERMINED

Percent Volatile

by Volume (%)

74

Vapor Density (AIR=Reference)

HEAVIER

Evaporation Rate

(ETHER=Reference)

SLOWER

Water Soluble

YES

Appearance and Odor

CLEAR AMBER SOLUTION, SLIGHT ODOR

Section IV - Fire and Explosion Hazard Data

Flash Point (Method Used)

NOT FLAMMABLE

Flammable Limits

NOT APPLICABLE

LEL

UEL

Extinguishing Media ALTHOUGH MATERIAL IS NON-FLAMMABLE, KEEP CONTAINER COOL WITH WATER SPRAY IF FIRE OCCURS.

Special Fire Fighting Procedures WEAR SELF CONTAINED BREATHING APPARATUS WITH FULL FACE PIECE AND PROTECTIVE CLOTHING WHILE FIGHTING FIRES.

Unusual Fire and Explosion Hazards NONE KNOWN.

Section V - Reactivity Data

STABILITY

Unstable

Stable

Conditions to Avoid

* NONE KNOWN

INCOMPATIBILITY (Materials to Avoid)

STRONG OXIDIZERS, STRONG ACIDS AND ALKALIES

TRW-01203

METAL PROCESSING SYSTEMS



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MATERIAL SAFETY DATA SHEET

GIL DRAW 2100

36153

Section V - Reactivity Data Cont.

Hazardous Decomposition Products

OXIDES OF CARBON, OXIDES OF NITROGEN, AMMONIA

HAZARDOUS

POLYMERIZATION

May Occur Conditions to Avoid

Will Not Occur * NONE

Section VI - Health Hazard Data

Primary Routes of Entry: Inhalation? * Skin? * Ingestion?

Effects of Overexposure MAY CAUSE MILD SKIN IRRITATION. MAY IRRITATE EYES WITH PROLONGED OVEREXPOSURE. MAY CAUSE RESPIRATORY IRRITATION WITH PROLONGED OVEREXPOSURE. INGESTION MAY CAUSE STOMACH DISTRESS.

Medical Conditions Aggravated by Overexposure

NONE FOUND

Emergency and First Aid Procedures:

Eye (Contact): FLUSH EYES WITH COPIOUS AMOUNTS OF WATER FOR 15 MINUTES AND CONTACT PHYSICIAN IMMEDIATELY.

Skin (Contact): FLUSH WITH WATER FOR 15 MINUTES. CONTACT PHYSICIAN IF IRRITATION PERSISTS.

Ingestion (Ingestion): DO NOT INDUCE VOMITING. DRINK LARGE QUANTITIES OF WATER AND/OR MILK. CONSULT PHYSICIAN IMMEDIATELY.

Inhalation (Breathing): REMOVE TO FRESH AIR. AID IN BREATHING IF NECESSARY AND GET IMMEDIATE MEDICAL ATTENTION IF NEEDED.

Section VII - Precautions for Safe Handling & Use

Steps to be taken in Case Material is Released or Spilled

WEAR APPROPRIATE PROTECTIVE EQUIPMENT. CONTAIN SPILL AND RECOVER CLEAN MATERIAL. ABSORB WITH INERT MATERIAL AND DISPOSE.

Waste Disposal Method: DISPOSE IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

Precautions to be Taken for Handling and Storage KEEP CONTAINER TIGHTLY CLOSED WHEN NOT IN USE. STORE ONLY IN WELL VENTILATED AREAS. AVOID BREATHING DUST, SPRAY OR MIST. STORE IN COOL, CLEAN, DRY LOCATION.

Other Precautions SHOWERS AND EYE WASH FOUNTAINS SHOULD BE MADE AVAILABLE WHERE CHEMICALS ARE USED.

Section VIII - Control Measures

Respiratory Protection (Specify Type)

USE NIOSH APPROVED EQUIPMENT IF CONDITIONS REQUIRE

TRW-01204

METAL PROCESSING SYSTEMS



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EMERGENCY 24 HOUR CHEMTREC NO. 800-424-9300

MATERIAL SAFETY DATA SHEET

61L DRAW 2100

36163

Section VIII - Control Measures Cont.

VENTILATION Local NOT REQUIRED BUT RECOMMENDED
Mechanical NOT REQUIRED BUT RECOMMENDED.

Protective Gloves
NEOPRENE RUBBER

Eye Protection
SPASH GOGGLES OR FACE SHIELD

Other Protective Clothing or Equipment
PROTECTIVE CLOTHING SUFFICIENT TO PREVENT SKIN CONTACT.

Work/Hygienic Practices
WASH THOROUGHLY BEFORE EATING, SMOKING OR USING TOILET FACILITIES.

Section IX - Additional Information

D.O.T. Proper Shipping Name: NONE REQUIRED

D.O.T. Hazard Class: NONE REQUIRED

D.O.T. Identification #: NONE

THE INFORMATION PRESENTED HEREIN HAS BEEN COMPILED FROM SOURCES CONSIDERED TO BE DEPENDABLE AND IS ACCURATE TO THE BEST OF THE SELLER'S KNOWLEDGE; HOWEVER, THE SELLER MAKES NO WARRANTY WHATSOEVER, EXPRESSED, IMPLIED, OR OF MERCHANTABILITY

METAL PROCESSING SYSTEMS

TRW-01205

0908-2575



Man-Gill Chemical Company • 23000 St. Clair Ave. • Cleveland, Ohio 44117 • 216/486-5300

9

MATERIAL CERTIFICATION

TRW

VENDOR: MAN-GILL CHEMICAL CO.
23000 ST. CLAIR AVE.
EUCLID, OH 44117

DATE: 8/10/88

MATERIAL: GILLITE D0-17

BATCH NO.: 40-19088-015

ORDER NO.: 40-35370

TEST ANALYSIS

<u>PROPERTY</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>
Appearance	Clear light straw color	yes
Specific Gravity	1.010-1.060	1.043
Free Alkalinity Refractive Index	1.400-1.430	1.419

Test Results Certified By:


Manager, Quality Assurance

TRW-01206

0908-2576



Man-GILL CHEMICAL COMPANY

23000 STEEL AVE. • CLEVELAND, OHIO 44117 • 800-328-9745

EMERGENCY 24 HOUR CHEMTREC NO. 800-424-9300

MATERIAL SAFETY DATA SHEET

Section I

Identity: GILLITE D0-17
Date Printed: 08/10/88
Date Revised: 08/08/88
NFPA CODE:
HEALTH: 1 FLAMMABILITY: 1 REACTIVITY: 0

Section II - Hazardous Ingredients

Hazardous Ingredients	CAS #	Health Hazards	ACGIH TLV-TWA
POTASSIUM HYDROXIDE (CAUSTIC POTASH LIQUID)	1310-58-6	CORROSIVE	2.5 mg/m ³
PROPYLENE GLYCOL	57-85-6	10 mg/CUM	NOT ESTABLISHED MANUFACTURER'S RECOMMENDED LIMIT

NO COMPONENT WAS FOUND TO BE CARCINOGENIC, TERATOGENIC OR MUTAGENIC

Section III - Physical/Chemical Characteristics

Boiling Point	212 DEG F	Specific Gravity(H ₂ O=1)	1.020
Vapor Pressure(mm Hg)	NOT DETERMINED	Percent Volatile By Volume (%)	4
Vapor Density (AIR=Reference)	HEAVIER	Evaporation Rate (Ether=Reference)	SLOWER
Water Soluble	YES		
Appearance and Odor	CLEAR AMBER LIQUID, SOAP ODOR		

Section IV - Fire and Explosion Hazard Data

Flash Point (Method Used)	Flammable Limits	LEL	UEL
NOT DETERMINED	NOT APPLICABLE		
Extinguishing Media	USE EXTINGUISHING MEDIA SUITABLE FOR SURROUNDING FIRE.		
Special Fire Fighting Procedures	WEAR SELF CONTAINED BREATHING APPARATUS WITH FULL FACE PIECE AND PROTECTIVE CLOTHING WHILE FIGHTING FIRES.		
Unusual Fire and Explosion Hazards	NONE KNOWN.		

Section V - Reactivity Data

STABILITY	Unstable	Conditions to Rapid	
	Stable *	NONE KNOWN	
		0908-2577	TRW-01207

METAL PROCESSING SYSTEMS



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EMERGENCY 24 HOUR CHEMTREC NO. 800-424-9300

MATERIAL SAFETY DATA SHEET

GILLITE DS-17

61574

Section V - Reactivity Data Cont.

INCOMPATIBILITY (Materials to Avoid)

NONE KNOWN

Hazardous Decomposition Products

NONE KNOWN

HAZARDOUS

May Occur

Conditions to Avoid

POLYMERIZATION

Will Not Occur *

NONE

Section VI - Health Hazard Data

Effects of Overexposure

MAY CAUSE IRRITATION AND BURNS TO THE EYES AND SKIN. INHALATION MAY IRRITATE RESPIRATORY PASSAGES. INGESTION MAY CAUSE DIARRHEA AND IRRITATE MUCOUS MEMBRANES.

Emergency and First Aid Procedures

Eye (Contact):

FLUSH EYES WITH COPIOUS AMOUNTS OF WATER FOR 15 MINUTES AND CONTACT PHYSICIAN IMMEDIATELY.

Skin (Contact):

FLUSH WITH WATER FOR 15 MINUTES. CONTACT PHYSICIAN IF IRRITATION PERSISTS.

Ingestion (Swallowing):

DO NOT INDUCE VOMITING. DRINK LARGE QUANTITIES OF WATER AND/OR MILK. CONSULT PHYSICIAN IMMEDIATELY.

Inhalation (Breathing):

REMOVE TO FRESH AIR. STOP BREATHING IF NECESSARY AND GET IMMEDIATE MEDICAL ATTENTION IF NEEDED.

Section VII - Precautions for Safe Handling & Use

Steps to be taken in Case Material is Released or Spilled

WEAR APPROPRIATE PROTECTIVE EQUIPMENT. CONTAIN SPILL AND RECOVER CLEAN MATERIAL. ABSORB WITH INERT MATERIAL AND DISPOSE.

Waste Disposal Method:

DISPOSE IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

Handling and Storage

KEEP CONTAINER TIGHTLY CLOSED WHEN NOT IN USE. STORE ONLY IN WELL VENTILATED AREAS. AVOID BREATHING DUST, SPRAY OR MIST. STORE IN COOL, CLEAN, DRY LOCATION.

Other Precautions

SHOWERS AND EYE WASH FOUNTAINS SHOULD BE MADE AVAILABLE WHERE CHEMICALS ARE USED.

Section VII - Control Measures

Respiratory Protection (Specify Type)

USE NIOSH APPROVED EQUIPMENT WHEN AIRBORNE EXPOSURE LIMITS ARE EXCEEDED.

TRW-01208



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EMERGENCY 24 HOUR CHEMTREC NO. 800-424-9300

MATERIAL SAFETY DATA SHEET

GILLITE 60-17

5/1/87

Section VIII - Control Measures Cont.

VENTILATION

Local
Mechanical

RECOMMENDED TO MAINTAIN BELOW TLV

Protective Gloves

NEOPRENE RUBBER

Eye Protection

SPLASH GOGGLES OR FACE SHIELD

Other Protective Clothing or Equipment

PROTECTIVE CLOTHING SUFFICIENT TO PREVENT SKIN CONTACT.

Work/Hygienic Practices

WASH THOROUGHLY BEFORE EATING, SMO- ING OR USING TOILET FACILITIES.

0908-2579

TRW-01209

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METAL PROCESSING SYSTEMS

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MATERIAL SAFETY DATA SHEET

Section I

51125

Identity GILLITE 51125	Date Prepared 11/18/85	Date Revised
NFPA CODE HEALTH 2	FLAMMABILITY 0	REACTIVITY 1

Section II — Hazardous Ingredients

Hazardous Ingredients	CAS #	Health Hazards	ACGIH TLV - TWA
SODIUM METASILICATE	6834-92-0	PEL 2 MG/CUM	
SOD. TRIPOLY PHOSPHATE (STPP)	7758-29-4	NUISANCE DUST	5 MG/CUM

Section III — Physical/Chemical Characteristics

Boiling Point	NOT APPLICABLE	Specific Gravity (H ₂ O = 1)	NOT APPLICABLE
Vapor Pressure (mm Hg)	NOT APPLICABLE	Percent Volatile By Volume (%)	NOT APPLICABLE
Vapor Density (AIR = Reference)	NOT APPLICABLE	Evaporation Rate (Ether = Reference)	NOT APPLICABLE
Water Soluble	YES		
Appearance and Odor	WHITE FLAKE, MILD ODOR		

Section IV — Fire and Explosion Hazard Data

Flash Point (Method Used)	Flammable Limits	LEL	UEL
NOT FLAMMABLE	NOT APPLICABLE		
Extinguishing Media	ALTHOUGH MATERIAL IS NON-FLAMMABLE, KEEP CONTAINER COOL WITH WATER SPRAY IF FIRE OCCURS.		
Special Fire Fighting Procedures	WEAR SELF CONTAINED BREATHING APPARATUS WITH FULL FACE PIECE AND PROTECTIVE CLOTHING WHILE FIGHTING CHEMICAL FIRES.		
Unusual Fire and Explosion Hazards	NONE KNOWN.		

TRW-01210

Man-GILL CHEMICAL COMPANY

MATERIAL SAFETY DATA SHEET

GILLITE 51125

51125

Section V — Reactivity Data

STABILITY	Unstable	Conditions to Avoid
	Stable *	NONE KNOWN

INCOMPATIBILITY (Materials to Avoid)

ACIDIC MATERIALS

Hazardous Decomposition Products

NONE KNOWN

HAZARDOUS	May Occur	Conditions to Avoid
POLYMERIZATION	Will Not Occur *	NONE

Section VI — Health Hazard Data

Effects of Overexposure MILD SKIN IRRITANT. IRRITATING TO THE EYES.
INHALATION MAY CAUSE RESPIRATORY TRACT IRRITATION.

Emergency and First Aid Procedures

Eye (Contact): FLUSH EYES WITH COPIOUS AMOUNTS OF WATER FOR 15 MINUTES
AND CONTACT PHYSICIAN IMMEDIATELY.

Skin (Contact): FLUSH WITH WATER FOR 15 MINUTES. CONTACT PHYSICIAN IF
IRRITATION PERSISTS.

Ingestion (Swallowing): DO NOT INDUCE VOMITING. DRINK LARGE QUANTITIES OF
WATER AND/OR MILK. CONSULT PHYSICIAN IMMEDIATELY.

Inhalation (Breathing): REMOVE TO FRESH AIR.

Section VII — Precautions for Safe Handling & Use

Steps to be taken in Case Material is Released or Spilled

CONTAIN SPILL AND RECOVER CLEAN MATERIAL. USE DILUTE ACID TO REDUCE
ALKALINITY.

Waste Disposal Method: DISPOSE IN ACCORDANCE WITH LOCAL, STATE AND
FEDERAL REGULATIONS.

Precautions To be Taken in Handling and Storage STORE IN COOL, CLEAN, DRY LOCATION. STORE
AWAY FROM ACIDS. STOCK SHOULD BE ROTATED. KEEP CONTAINER TIGHTLY CLOSED
WHEN NOT IN USE.

Other Precautions: SHOWERS AND EYE WASH FOUNTAINS SHOULD BE MADE
AVAILABLE WHERE CHEMICALS ARE USED.

Section VIII — Control Measures

Respiratory Protection (Specify Type)

USE NIOSH APPROVED EQUIPMENT WHEN AIRBORNE EXPOSURE LIMITS ARE EXCEEDED.

Ventilation	Local	RECOMMENDED TO MAINTAIN BELOW TLV
	Mechanical	

Protective Gloves

NEOPRENE RUBBER

Eye Protection

SPLASH GOGGLES OR FACE SHIELD

Other Protective Clothing or Equipment

RUBBER APRON. PROTECTIVE CLOTHING SUFFICIENT TO PREVENT SKIN CONTACT.

Work/Hygienic Practices

WASH THOROUGHLY BEFORE EATING, SMOKING OR USING TOILET FACILITIES.

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ACCURATE TO THE BEST OF SELLER'S KNOWLEDGE, HOWEVER, SELLER MAKES NO WARRANTY WHATSOEVER, EXPRESSED,
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DAMAGE TO ANY PROPERTY AND BUYER ASSUMES ALL SUCH RISK.

MATERIAL SAFETY DATA SHEET

3M
3M Center
St. Paul, Minnesota 55144
(612) 733-1110

Form 15593-C PWO

DUNS NO.: 00-617-3082

Chemical Family Silica Glass

Trade Name	3M Brand IM-0405 Impact Media
------------	-------------------------------

3M I. D. Number 98-0120-0210-5

Plating Systems Dept. Comm. Chem. Div.

1. INGREDIENTS

CAS. #

%

TLV® (unit)

Glass beads

100

Not applicable

DO NOT

DUPLICATE

2. PHYSICAL DATA

Boiling Point

Not applicable

Solubility in Water

Inert

Vapor Pressure

Specific Gravity ($H_2O=1$)

Vapor Density (Air = 1)

Percent Volatile

Evaporation Rate (=1)

pH

Appearance and Odor	Clear glass beads (.157-.223" diameter)
---------------------	---

3. FIRE AND EXPLOSION HAZARD DATA

Flash Point (Test Method)	Not applicable
---------------------------	----------------

Flammable Limits: LEL = UEL =

Extinguishing Media Not flammable

Special Fire Fighting Procedures

Unusual Fire and Explosion Hazards None

4. ENVIRONMENTAL INFORMATION

Spill Response

Vacuum or sweep up. Avoid dusting.

Recommended Disposal

Dispose as trash in accordance with local and state regulations.

Environmental Data

TRW-01212

Threshold Limit Values listed above are current to 1981. Because they are reviewed yearly by ACGIH and subject to change (usually to a lower value) it is necessary for the user of this Material Safety Data Sheet to maintain a list of revised TLV's and update the sheet periodically.

0908-2582

TRADE NAME: 3M Brand IM-0405 Impact Media

5. HEALTH HAZARD DATA

Eye Contact

Skin Contact

Inhalation

Nuisance dust.

Ingestion

Suggested First Aid

6. REACTIVITY DATA

STABILITY ☐ Unstable
☒ Stable

Conditions to Avoid

INCOMPATIBILITY

Materials to Avoid

**HAZARDOUS
POLYMERIZATION** ☐ May Occur
☒ May Not
Occur

Conditions to Avoid

Hazardous Decomposition Products

None. Inert in most environments.

7. SPECIAL PROTECTION INFORMATION

Eye Protection

Skin Protection

Ventilation

Location exhaust ventilation is recommended.

Respiratory and Special Protection

Other Protection

8. PRECAUTIONARY INFORMATION

Should be regarded as nuisance dust. Avoid breathing of dust.

9. DEPARTMENT OF TRANSPORTATION

DOT Proper Shipping Name

Not applicable

DOT Hazard Class

Not applicable

Issue Date

1/1982

Supersedes

3/1975

The information on this Data Sheet represents our current data and best opinion as to the proper use in handling of this product under normal conditions. Any use of the product which is not in conformance with this Data Sheet or which involves using the product in combination with any other product or any process is the responsibility of the user.

Interoffice
Correspondence

TRW

To

From

Date

Subject

cc

2:45 PM

612-733-1110

9/17/93

JM

Mural - Product Information
Reflex Liquor -

Commercial Graphics -

802-325-3908

CARL - IN "Commercial Graphics"

WALT Young Blood - IN LAB
Left message on his machine, Call me back

BOWMAN DISTRIBUTION MATERIAL SAFETY DATA SHEET

SECTION I

PRODUCT NAME GLASS CLEANER		BOWMAN PART NO. 21941 (page 1 of 2)
SUPPLIER Bowman Distribution, Barnes Group Inc.		EMERGENCY TELEPHONE NO. (216) 391-7200
ADDRESS 850 East 72nd Street, Cleveland, OH 44103		DATE 12/12/86
HAZARDOUS MATERIAL DESCRIPTION, PROPER SHIPPING NAME, HAZARD CLASS, HAZARD ID NO. (49 CFR 172.101) Consumer Commodity, ORM-D		
ADDITIONAL HAZARD CLASSES (as applicable) N.A.		
CHEMICAL FAMILY Blend of water, surfactants, solvents with hydrocarbon propellant.	FORMULA	

SECTION II - HAZARDOUS INGREDIENTS

CAS REGISTRY NO	%W	%V	CHEMICAL NAME(S)	Listed as a Carcinogen in NTP, IARC or OSHA 1910(z) (specify)
7732-18-5	85		Water	N.A.
75-28-5	<5		Isobutane	N.A.
112-34-5	<1		Glycol Ether	N.A.
67-63-0	4.3		Isopropanol	N.A.
8033-69-0	<1		Sodium Cocoaminopropionate	N.A.
7722-88-5	<1		Tetrasodium Pyrophosphate	N.A.
N.A.	<1		Fragrance	N.A.

SECTION III - PHYSICAL DATA

BOILING POINT <u>180</u> °F <u> </u> °C		SPECIFIC GRAVITY (H ₂ O = 1)	0.99		
VAPOR PRESSURE @ <u> </u> °F <u> </u> °C <input type="checkbox"/> mm Hg <input type="checkbox"/> psi N.A.		PERCENT VOLATILE BY VOLUME (%)	99.86	PERCENT SOLID BY WEIGHT (%)	<1
VAPOR DENSITY (AIR = 1)	N.A.	EVAPORATION RATE (= 1) Butyl Acetate	0.9		
SOLUBILITY IN WATER	Soluble	pH = Concentrate Approximately	10.7		
APPEARANCE AND ODOR Clear Liquid, characteristic odor.				MATERIAL IS: LIQUID	

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT <u>120</u> °F <u> </u> °C	method used (TOC)	FLAMMABLE LIMITS	LEL 1.8	UEL 8.4
EXTINGUISHING MEDIA Water, carbon dioxide, chemical, dry foam				
SPECIAL FIRE FIGHTING PROCEDURES N.A.				
UNUSUAL FIRE AND EXPLOSION HAZARDS Prolonged exposure to temperatures above 130° F may cause cans to burst.				

21941 (page 1 of 2)

SECTION V - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE - Conditions to avoid Skin: may cause irritation; Eyes: mild irritation; Ingestion: nausea; Inhalation: none.		THRESHOLD LIMIT VALUE	
		PERMISSIBLE EXPOSURE LIMIT N.A.	
		OTHER LIMIT N.A.	
PRIMARY ROUTES OF ENTRY Inhalation <input type="checkbox"/> Skin Contact <input type="checkbox"/> Other (specify) Ingestion			
EMERGENCY AND FIRST AID PROCEDURES Skin: wash with soap and water; Eyes: flush with excess water, consult physician if irritation persists.			
Ingestion: do not induce vomiting, call a physician immediately.			

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE	CONDITIONS TO AVOID	
	STABLE	X	None
INCOMPATIBILITY (materials to avoid) None			
HAZARDOUS DECOMPOSITION PRODUCTS None			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Blot with absorbent material and discard in trash. Flush affected area with water.	
WASTE DISPOSAL METHOD Landfill or other acceptable methods following local, state and federal regulations in accordance with RCRA.	
CERCLA (Superfund) REPORTABLE QUANTITY (in lbs) N.A.	
RCRA HAZARDOUS WASTE NO. (40 CFR 261.33) N.A.	
VOLATILE ORGANIC COMPOUND (VOC) (as packaged minus water) Isobutane, isopropanol, glycol ether.	<input checked="" type="checkbox"/> Theoretical 8.23 lb/gal <input checked="" type="checkbox"/> Analytical 8.23 lb/gal

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (specify type) None		
VENTILATION	LOCAL EXHAUST (specify rate) Recommended	SPECIAL None
	MECHANICAL (general) (specify rate) General	OTHER None
PROTECTIVE GLOVES (specify type) None	EYE PROTECTION (specify type) None	
OTHER PROTECTIVE EQUIPMENT None		

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Do not puncture or incinerate. Contents under pressure. Do not store below 32° F or above 130° F. Do not use near heat, sparks or open flame.	
OTHER PRECAUTIONS Keep out of the reach of children.	

Health	3
Flammability	4
Reactivity	0
Personal Protection	A

HMIS Ratings

BOWMAN DISTRIBUTION MATERIAL SAFETY DATA SHEET

Health	3
Flammability	4
Reactivity	0
Specific Hazard	

NFPA Ratings

SECTION I

PRODUCT NAME GLASS CLEANER II		BOWMAN PART NO. 21993 (page 1 of 2)
SUPPLIER Bowman Distribution, Barnes Group Inc.		EMERGENCY TELEPHONE NO. (216) 391-7200
ADDRESS 850 East 72nd Street, Cleveland, OH 44103		DATE 1/30/90
HAZARDOUS MATERIAL DESCRIPTION, PROPER SHIPPING NAME, HAZARD CLASS, HAZARD ID NO. (49 CFR 172.101) Consumer Commodity ORM-D UN-1954		
ADDITIONAL HAZARD CLASSES (as applicable) None		
CHEMICAL FAMILY Mixture	FORMULA TM-5	

SECTION II - HAZARDOUS INGREDIENTS

CAS REGISTRY NUMBER	%W	%V	CHEMICAL NAME(S)	OSHA PEL	ACGIH TLV	STEL Other Limits	Listed as Carcinogen NTP, IARC or OSHA 1910(z) (specify)
1336-21-6	<1		Aqua Ammonia	35	25	N.E.	No
111-76-2	5		*2-Butoxyethanol	25	25	N.E.	No
67-63-0	9		Isopropyl Alcohol	400	400	500	No
74-98-6	7		Propane/Isobutane	1000	1000	asphyxiant	No
	78		Non-hazardous	N.A.	N.A.	N.A.	No

ALL CHEMICAL COMPOUNDS MARKED WITH AN ASTERISK () ARE TOXIC CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF TITLE III OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) OF 1986 AND 40 CFR PART 372.

SECTION III - PHYSICAL DATA

BOILING POINT -40°F to 212°F _____ °C		SPECIFIC GRAVITY (H ₂ O = 1)	0.9		
VAPOR PRESSURE 45 @ 70 °F _____ °C _____ mm Hg <input checked="" type="checkbox"/> psi		PERCENT VOLATILE BY VOLUME (%)	100	PERCENT SOLID BY WEIGHT (%)	N.A.
VAPOR DENSITY (AIR = 1) Heavier than air	4.0	EVAPORATION RATE (= 1) Butyl Acetate	<1		
SOLUBILITY IN WATER	very soluble	PH =	11		
APPEARANCE AND ODOR Clear/Solvent odor.				MATERIAL IS: Liquid & Gas	

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT -40 °F _____ °C	method used T.C.C.	FLAMMABLE LIMITS	LEL 1.8	UEL 12.0
EXTINGUISHING MEDIA Use water fog, dry chemical or carbon dioxide.				
SPECIAL FIRE FIGHTING PROCEDURES Aerosol cans may rupture when heated.				
UNUSUAL FIRE AND EXPLOSION HAZARDS Heated cans may burst.				

21993 (page 1 of 2)

N.A. - Not Applicable
N.E. - Not Established
N.D. - Not Determined

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TRW-01217

SECTION V - HEALTH HAZARD DATA

HEALTH HAZARDS (ACUTE AND CHRONIC - INCLUDE TARGET ORGAN EFFECTS) May cause dizziness or narcosis in high vapor concentrations. Will cause defatting of skin. Effects are reversible. Long term exposure (years) to vapor may cause lung, liver or kidney damage. The solvents listed have been reported to affect the central nervous system.	
CONDITIONS TO AVOID See above.	
SIGNS AND SYMPTOMS OF OVEREXPOSURE Inhalation-difficulty in breathing. Skin-redness. Ingestion-vomiting	
PRIMARY ROUTES OF ENTRY Inhalation <input checked="" type="checkbox"/> Skin Contact <input checked="" type="checkbox"/> Other (specify) Ingestion	
EMERGENCY AND FIRST AID PROCEDURES Give oxygen-do not induce vomiting. Gastric lavage. Wash eyes and skin with water.	
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE Heart disease, respiratory disorders.	

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	High Temperatures
INCOMPATIBILITY (materials to avoid) The above solvents are incompatible with strong oxidizers			
HAZARDOUS DECOMPOSITION PRODUCTS: In fire will decompose to Carbon Dioxide and water.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Use absorbent sweeping compound to soak up material. Put into container. Dispose of as hazardous waste.	
WASTE DISPOSAL METHOD Dispose of as hazardous waste in accordance with EPA RCRA.	
CERCLA (Superfund) REPORTABLE QUANTITY (in lbs.) N.E.	
RCRA HAZARDOUS WASTE NO. (40 CFR 261.33) D-001	
VOLATILE ORGANIC COMPOUND (VOC) as packaged, minus water) <30 %	<input checked="" type="checkbox"/> Theoretical 5.1 lb/gal
	<input type="checkbox"/> Analytical _____ lb/gal

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (specify type) Self contained breathing apparatus if above TLV limit.		
VENTILATION	LOCAL EXHAUST (specify rate) Yes	SPECIAL None OTHER None
	MECHANICAL (general) (specify rate) None	
PROTECTIVE GLOVES (specify type) None required if spraying		EYE PROTECTION (specify type) Wear eye protection
OTHER PROTECTIVE EQUIPMENT Long sleeves and long pants.		

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Keep away from heat, sparks or open flame. Store at temperatures below 120° F.	
OTHER PRECAUTIONS None	

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form OSHA-20
OMB No. 44-01387
REV: 1985

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME GOLD SEAL COMPANY		EMERGENCY TELEPHONE NO. (201) 273-4990
ADDRESS (Number, Street, City, State, and ZIP Code) 47 RIVER ROAD, SUMMIT, NJ 07901		
CHEMICAL NAME AND SYNONYMS N.A.		TRADE NAME AND SYNONYMS "GLASS WAX"
CHEMICAL FAMILY N.A.	FORMULA N.A.	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS	N.A.		BASE METAL	N.A.	
CATALYST	N.A.		ALLOYS	N.A.	
VEHICLE	N.A.		METALLIC COATINGS	N.A.	
SOLVENTS	Petroleum Distillates	II	FILLER METAL PLUS COATING OR CORE FLUX	N.A.	
ADDITIVES	N.A.		OTHERS	N.A.	
OTHERS	N.A.				
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Not considered hazardous under OSHA Standards					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	Approx.	212	SPECIFIC GRAVITY (H ₂ O=1)	1.0
VAPOR PRESSURE (mm Hg.)	Approx.	17-325 °F	PERCENT VOLATILE BY VOLUME (%)	Approx. 90
VAPOR DENSITY (AIR=1)	Approx.	0.6	EVAPORATION RATE (_____ = 1)	Approx. 1.0
SOLUBILITY IN WATER	complete			
APPEARANCE AND ODOR	Pink - Pleasant Mild Odor			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used: None	FLAMMABLE LIMITS None	Let	Ust
EXTINGUISHING MEDIA N.A.			
SPECIAL FIRE FIGHTING PROCEDURES N.A.			
UNUSUAL FIRE AND EXPLOSION HAZARDS NONE			

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	N.A.
EFFECTS OF OVEREXPOSURE	N.A.
EMERGENCY AND FIRST AID PROCEDURES	
Maybe harmful or fatal if swallowed. If swallowed do not induce vomiting. Call physician. For skin or eye contact, wash with plenty of water.	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATIBILITY (Materials to avoid)			
HAZARDOUS DECOMPOSITION PRODUCTS			
N.A.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
Ordinary clean-up with water and mop dry	
WASTE DISPOSAL METHOD	
No special procedures necessary. Done in accordance with local, state and federal regulations.	

SECTION VIII - SPECIAL PROTECTION INFORMATION		
RESPIRATORY PROTECTION (Specify type)		
N.A.		
VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General)	OTHER
PROTECTIVE GLOVES		EYE PROTECTION
N.A.		N.A.
OTHER PROTECTIVE EQUIPMENT		
N.A.		

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
Store at room temperatures; keep from freezing.	
OTHER PRECAUTIONS	

BOWMAN DISTRIBUTION MATERIAL SAFETY DATA SHEET

SECTION I

PRODUCT NAME GLOSS WHITE ENAMEL		BOWMAN PART NO. 24706 (page 1 of 3)	
SUPPLIER Bowman Distribution, Barnes Group Inc.		EMERGENCY TELEPHONE NO. (214) 344-1200	
ADDRESS 850 East 72nd Street, Cleveland, OH 44103		DATE 1/26/88	
HAZARDOUS MATERIAL DESCRIPTION, PROPER SHIPPING NAME, HAZARD CLASS, HAZARD ID NO. (49 CFR 172.101) Aerosol Spray Paint, Consumer Commodity, ORM-D			
ADDITIONAL HAZARD CLASSES (as applicable) N.A.			
CHEMICAL FAMILY N.A.		FORMULA X7838	

SECTION II - HAZARDOUS INGREDIENTS

CAS REGISTRY NO.	%W	%V	CHEMICAL NAME(S)	TLV PPM Mg/M ³	Listed as a Carcinogen in NTP, IARC or OSHA 1910(z) (specify)
67-64-1	30-40		Acetone	750 1750	No
1330-20-7	5-10		Xylene	100 435	No
64-17-5	5-10		Ethyl Alcohol	1000 1900	No
123-42-2	5-10		Diacetone Alcohol	50 240	No
78-93-3	5		Methyl Ethyl Ketone	200 590	No
—	23		Propellant: Propane/Isobutane	— —	No

SECTION III - PHYSICAL DATA

BOILING POINT <u>133</u> °F <u> </u> °C		SPECIFIC GRAVITY (H ₂ O = 1) <u>.90</u>			
VAPOR PRESSURE <u>186</u> @ <u> </u> °F <u>20</u> °C <input checked="" type="checkbox"/> mm Hg <input type="checkbox"/> psi		PERCENT VOLATILE BY VOLUME (%) <u>85-90</u>		PERCENT SOLID BY WEIGHT (%) <u>15-20</u>	
VAPOR DENSITY (AIR = 1) <u>N.A.</u>		EVAPORATION RATE (<u> </u> = 1) <u>N.A.</u>			
SOLUBILITY IN WATER <u>N.A.</u>		pH = <u>N.A.</u>			
APPEARANCE AND ODOR Paint, solvent odor.				MATERIAL IS: LIQUID	

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT <u>0</u> °F <u>-18</u> °C method used		FLAMMABLE LIMITS		LEL 1.1	UEL N.A.
EXTINGUISHING MEDIA Carbon Dioxide, Dry Chemical, or Alcohol Foam					
SPECIAL FIRE FIGHTING PROCEDURES Water spray may be ineffective. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat. If water is used, fog nozzles are preferable.					
UNUSUAL FIRE AND EXPLOSION HAZARDS Vapors are heavier than air and may travel along the ground or may be moved by ventilation and ignited by pilot lights, other flames, sparks, heaters, smoking, electric motors or other ignition sources at locations distant from material handling point.					

24706 (page 1 of 3)

SECTION V - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE - Conditions to avoid Excessive inhalation of vapors — can cause nasal and respiratory irritation, dizziness, weakness, fatigue, nausea, headache, possible unconsciousness, and even asphyxiation.	THRESHOLD LIMIT VALUE See Section II PERMISSIBLE EXPOSURE LIMIT OTHER LIMIT
PRIMARY ROUTES OF ENTRY Inhalation <input checked="" type="checkbox"/> Skin Contact <input type="checkbox"/> Other (specify)	
EMERGENCY AND FIRST AID PROCEDURES If affected, remove individual to fresh air. If breathing is difficult, administer oxygen. If breathing has stopped, give artificial respiration. Keep person warm, quiet and get medical attention.	
SEE PAGE 3 FOR ADDITIONAL SECTION V INFORMATION	

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE	CONDITIONS TO AVOID
	STABLE	X Heat, sparks and open flame.
INCOMPATIBILITY (materials to avoid) Avoid contact with: strong oxidizing agents and heat.		
HAZARDOUS DECOMPOSITION PRODUCTS: N.A.		
HAZARDOUS POLYMERIZATION	MAY OCCUR	CONDITIONS TO AVOID N.A.
	WILL NOT OCCUR	X

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Absorb liquid on paper, vermiculite, floor absorbent or other absorbent material and transfer to a closed container. Eliminate all ignition sources.	
WASTE DISPOSAL METHOD Material collected on absorbent material may be deposited in a posted toxic substance landfill in accordance with local, state and federal regulations.	
CERCLA (Superfund) REPORTABLE QUANTITY (in lbs) N.A.	
RCRA HAZARDOUS WASTE NO. (40 CFR 261.33) N.A.	
VOLATILE ORGANIC COMPOUND (VOC) (as packaged, minus water)	<input checked="" type="checkbox"/> Theoretical <u>5.1</u> lb/gal
	<input type="checkbox"/> Analytical _____ lb/gal N.A. (see theoretical)

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (specify type) NIOSH/MSHA jointly approved self-contained breathing apparatus with a full face piece operated in pressure demand.		
VENTILATION	LOCAL EXHAUST (specify rate) Sufficient to maintain exposure below TLV(s).	SPECIAL
	MECHANICAL (general) (specify rate)	OTHER
PROTECTIVE GLOVES (specify type) Chemical resistant gloves.	EYE PROTECTION (specify type) Chemical splash goggles in compliance with OSHA regulations.	
OTHER PROTECTIVE EQUIPMENT N.A. SEE PAGE 3 FOR ADDITIONAL SECTION VIII INFORMATION		

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Do not store in areas above 120°F or in direct sunlight or near heat or open flames.	
OTHER PRECAUTIONS Store large quantities in buildings protected for storage of NFPA Class 1C flammable liquids.	

BOWMAN DISTRIBUTION MATERIAL SAFETY DATA SHEET

SECTION I

PRODUCT NAME GLOSS WHITE ENAMEL	BOWMAN PART NO. 24706 (page 3 of 3)
SUPPLIER Bowman Distribution, Barnes Group Inc.	EMERGENCY TELEPHONE NO. (216) 391-7200
ADDRESS 850 East 72nd Street, Cleveland, OH 44103	DATE 1/26/88

SECTION V - HEALTH HAZARD DATA

ROUTES OF ENTRY	<input checked="" type="checkbox"/> Inhalation	<input type="checkbox"/> Skin	<input type="checkbox"/> Ingestion	<input checked="" type="checkbox"/> Eyes
CARCINOGENICITY	<input type="checkbox"/> NPT	<input type="checkbox"/> IARC	<input type="checkbox"/> OSHA	

Ingredients for product(s) listed in Section II are not found in these agencies' lists.

SYMPTOMS OF OVEREXPOSURE:

Acute:

BREATHING — excessive inhalation of vapors can cause nasal and respiratory irritation, dizziness, weakness, fatigue, nausea, headache, possible unconsciousness and even asphyxiation.

EYE CONTACT — can cause severe irritation, redness, tearing, blurred vision.

SWALLOWING — can cause gastrointestinal irritation, nausea, vomiting, diarrhea.

SKIN CONTACT — can cause irritation for some persons.

Chronic:

None known for product(s) in Section II.

Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Severe overexposure in laboratory animals has also caused heart and liver abnormalities and damage to kidneys, lungs, and spleen. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.

Medical Conditions
Generally Aggravated by Exposure:

Can cause allergic respiratory and/or skin reaction.

FIRST AID — EMERGENCY PROCEDURES:

IF BREATHED — remove individual to fresh air. If breathing is difficult, administer oxygen. If breathing is stopped, give artificial respiration and seek medical help.

IF IN EYES — flush with water for 15 minutes while occasionally holding eyelids open. Get medical attention.

IF SWALLOWED — Do not induce vomiting (aspiration of material into lungs can cause chemical pneumonitis, which can be fatal). Keep person warm, quiet, and get medical attention/Poison Control Center.

IF ON SKIN — wash with soap and water or various hand cleaners, and wash clothing before re-use.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:
For casual/occasional use — to avoid breathing vapors or spray mist, open windows and doors or use other means to ensure fresh air entry during application and drying. If you experience eye watering, headaches, or dizziness, increase fresh air, wear respiratory protection (NIOSH/MSHA TC23C or equivalent), or leave the area.
VENTILATION:
For regular/continuous use — provide sufficient mechanical (general) and/or local exhaust ventilation to maintain exposure below TLV's in Section II.
PROTECTIVE GLOVES:
Wear chemical resistant gloves, such as neoprene, if skin contact is to be avoided.
EYE PROTECTION:
Chemical splash goggles, in compliance with OSHA regulations, are advised.
OTHER PROTECTIVE EQUIPMENT:
Where special or unusual conditions exist, the expert assistance of an industrial hygienist should be sought.
WORK/HYGENIC PRACTICES:
Wash hands before eating or using washroom. As with all chemicals, minimize personal contact and breathing of vapors.

MATERIAL SAFETY DATA SHEET

NPCA

FOR COATINGS, RESINS AND RELATED MATERIALS

(Approved by U.S. Department of Labor Essentially Similar to Form OSHA-20)

DATE OF PREP 5/15/84 DMR

Section I

MANUFACTURER'S NAME MAN-GILL CHEMICAL COMPANY-PAINT GROUP

STREET ADDRESS 214 NORTHFIELD ROAD CITY, STATE, AND ZIP CODE BEDFORD, OHIO 44146

EMERGENCY TELEPHONE NO. 216/232-3800

PRODUCT CLASS ALKYD

MANUFACTURER'S CODE IDENTIFICATION

TRADE NAME GLOSS BLACK WATER REDUCIBLE ALKYD

53815

Section II - HAZARDOUS INGREDIENTS

INGREDIENT	PERCENT	TLV		LEL	VAPOR PRESSURE
		PPM	mg M ³		
ETHYLENE GLYCOL MONO BUTYL ETHER (BUTYL CELLOSOLVE)	15	50		1.1	< 1.0
/ N BUTANOL	4	100		1.4	4.4
/ TRIETHYLAMINE (TEA)	2	25		1.2	54.0
/ STRONTIUM CHROMATE	1	N/A	0.10	N/A	N/A

Section III - PHYSICAL DATA

BOILING RANGE 220°F

VAPOR DENSITY

☒ HEAVIER

☐ LIGHTER THAN AIR

EVAPORATION RATE ☐ FASTER ☒ SLOWER THAN ETHER

PERCENT VOLATILE BY VOLUME 76.4

WEIGHT PER GALLON 8.48

Section IV - FIRE AND EXPLOSION HAZARD DATA

DOT CATEGORY NON-FLAMMABLE LIQUID

FLASH POINT 195°F

LEL 1.1

EXTINGUISHING MEDIA

Not applicable

UNUSUAL FIRE AND EXPLOSION HAZARDS

Closed containers may explode (due to the buildup of steam pressure) when exposed to extreme heat.

SPECIAL FIRE FIGHTING PROCEDURES

Not applicable

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TRW-01224

Section V – HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE 50-ppm

EFFECTS OF OVEREXPOSURE

Severe eye irritation, and drying of skin.
Excessive inhalation causes headache, dizziness and nausea.

EMERGENCY AND FIRST AID PROCEDURES

Eye contact — flush with water.
Skin contact — wash with mild soap and water and apply skin cream.
Inhalation — remove to fresh air and call physician; apply artificial respiration if necessary.

Section VI – REACTIVITY DATA

STABILITY ☐ UNSTABLE ☒ STABLE

CONDITIONS TO AVOID

INCOMPATIBILITY (Materials to avoid)

HAZARDOUS DECOMPOSITION PRODUCTS

None

HAZARDOUS POLYMERIZATION ☐ MAY OCCUR ☒ WILL NOT OCCUR

CONDITIONS TO AVOID

Section VII – SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Avoid breathing vapors. Ventilate areas. Remove with inert absorbent.

WASTE DISPOSAL METHOD Dispose in accordance with local, state and federal regulations.
Incinerate in approved facility. Do not incinerate closed containers.

Section VIII – SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

In restricted ventilation areas use Bureau of Mines approved chemical-mechanical filters designed to remove gas and vapor. In confined areas use U.S. Bureau of Mines air line type respirators or hoods.

VENTILATION

Provide general dilution or local exhaust ventilation in volume and pattern to keep TLV of hazardous ingredient in Section II below acceptable limit; and LEL in Section IV below stated limit.

PROTECTIVE GLOVES Required for contact (polyethylene-lined gloves offer maximum protection).

EYE PROTECTION Use safety eye wear to protect against splashes of liquid.

OTHER PROTECTIVE EQUIPMENT Protective overalls to prevent clothing contamination, skin irritation.

Section IX – SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Do not store above 120°F

OTHER PRECAUTIONS

Do not take internally.

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TRW-01225



Health Effects

CELLOSOLVE Solvent/CELLOSOLVE Acetate

Overview

September 1, 1983

The toxicity of glycol ethers is a matter of substantial interest and concern in many segments of industry. Significant toxicological studies have been conducted involving several members of this chemical group. This set of questions and answers deals with 2-ethoxyethanol and 2-ethoxyethylacetate, which Union Carbide manufactures and markets under the trade names of CELLOSOLVE® Solvent and CELLOSOLVE® Acetate, respectively.

1. WHAT IS THE BASIS FOR THE CURRENT CONCERN?

Two different types of biological activity have been investigated. One area of study, teratology, involves exposure of pregnant female animals during the critical portions of the gestation period and examination of the offspring to detect any increase in the incidence of birth defects. The second area of study deals with the effect on the exposed animals themselves, male or female, resulting from repeated exposure over a significant period of time.

2. WHAT TERATOLOGY TESTING HAS BEEN PERFORMED ON CELLOSOLVE® SOLVENT?

In an inhalation teratology study conducted at Battelle Pacific Northwest Laboratories under contract from the National Institute for Occupational Safety and Health (NIOSH), female rats were exposed to 2-ethoxyethanol at concentrations of 765 ppm or 202 ppm, and female rabbits were exposed at 615 ppm or 160 ppm. At the higher exposure levels, complete embryoletality (increased incidence of intrauterine deaths) was observed; no offspring survived. At the lower exposure level in each case, a statistically significant increase in incidence of birth defects was observed in some of the offspring.

In an inhalation teratology study sponsored by the Glycol Ethers Program Panel of the Chemical Manufacturers Association (CMA), no statistically significant evidence of birth defects was obtained when female rabbits were exposed to 2-ethoxyethanol at airborne concentrations of 175 ppm, 50 ppm, and 10 ppm. Fetotoxicity,

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CELLOSOLVE® Solvent/CELLOSOLVE® Acetate

- 2 -

manifested in delayed skeletal development and reduced fetal weights, was observed at 175 ppm, but not at lower levels. In rats exposed to airborne concentrations of 250 ppm, 50 ppm, or 10 ppm of 2-ethoxyethanol, significant effects--embryo lethality and fetotoxicity--were observed only at the highest exposure level. Again, there was no statistically significant evidence of birth defects.

In another NIOSH study 2-ethoxyethanol was applied to the skin of pregnant female rats during the gestation period in daily quantities of approximately 8 grams and 4 grams per kilogram of body weight. At the higher exposure level, no offspring survived. At the lower exposure level, there was increased incidence of embryo lethality and fetotoxicity, and birth defects among the surviving offspring.

3. WHAT IS THE SIGNIFICANCE OF THE ANIMAL TERATOLOGY TESTS IN TERMS OF HUMAN EXPOSURE TO CELLOSOLVE® SOLVENT?

It appears that these observations, taken in total, portray a threshold teratogenic response level for inhalation of 2-ethoxyethanol in the range of 150-250 ppm in rats and rabbits. Over this same range, effects on other aspects of fetal development also appear to emerge, along with signs of significant, although largely transitory, effects on pregnant adults. Although it is difficult to project these effects onto the human situation, we consider it prudent to control exposure of pregnant females to this chemical.

4. WHAT TERATOLOGY TESTING HAS BEEN PERFORMED ON CELLOSOLVE® ACETATE?

An inhalation teratology study in female rats was conducted by NIOSH at exposure levels of 600 ppm, 390 ppm, or 130 ppm of 2-ethoxyethylacetate in the air. Embryo lethality was complete (no surviving offspring) at the highest exposure level. At 390 ppm there was a statistically significant increase in skeletal variations indicative of delayed development due to fetotoxicity, and there was a small number of observed birth defects. Exposure to 130 ppm produced no statistically significant observations.

Another inhalation teratology study in female rabbits was performed under the sponsorship of the CMA Glycol Ethers Panel. Exposure to 400 ppm produced a toxic effect on the adult females (reduced weight gain and food consumption and reduced blood hemoglobin level). At the 400 ppm exposure level, some birth defects of the vertebral column were observed along with evidence of embryo lethality and fetotoxicity (increased fetal death and delayed skeletal development). There were no significant effects at either 100 ppm or 25 ppm.

TRW-01227

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5. WHAT IS THE SIGNIFICANCE OF THE ANIMAL TERATOLOGY TESTS IN TERMS OF HUMAN EXPOSURE TO CELLOSOLVE® ACETATE?

The two teratology studies demonstrate a threshold response level of exposures approaching 400 ppm of 2-ethoxyethylacetate for birth defects, fetotoxicity, and maternal toxicity. Although a similarity to 2-ethoxyethanol can be seen, the substantial gaps between the exposure levels selected for the tests do not permit a precise identification of the degree of similarity. Even with the existence of these gaps, we consider it prudent to treat 2-ethoxyethylacetate and 2-ethoxyethanol the same with respect to limitation of exposure for women of childbearing potential.

6. WHAT TESTING OF REPEATED EXPOSURE OF ADULT ANIMALS HAS BEEN PERFORMED WITH THESE CHEMICALS?

The previous Health Effects Overviews have listed tests which have been updated and are summarized as follows:

In Japan a few years ago, a series of tests involving glycol ethers and their acetates was performed in which mice were exposed by direct insertion of the test material into the stomach. Although the results of such a test must be evaluated cautiously because of the severity of this exposure route, the tests gave indication that repeated exposure to 2-ethoxyethanol and to 2-ethoxyethylacetate can cause damage to blood cells and male reproductive organs. There was further indication that the two chemicals were of comparable potency on an equal-molar basis.

A report published in August 1983, of work conducted in the United Kingdom, in which rats received oral doses of 2-ethoxyethanol, essentially confirmed the Japanese observations and furthermore demonstrated that, when the dosing was stopped, the testicular damage was largely reversible.

Just completed is a 13-week inhalation study on 2-ethoxyethanol sponsored by the CMA Glycol Ether Panel. When relevant exposure routes and realistic exposure levels are employed, most cumulative effects which may result from repeated exposure can be observed during such 13-week studies. In the newly completed study, rats and rabbits were exposed to 2-ethoxyethanol at concentrations of 400 ppm, 100 ppm, and 25 ppm in the air. Some evidence of blood cell changes and slight degeneration of testes was observed in rabbits exposed to a concentration of 400 ppm. No effects were observed in rabbits at the lower exposure levels, nor at any exposure level in rats.

7. WHAT IS UNION CARBIDE'S INTERPRETATION OF THE RESULTS OF REPEATED-EXPOSURE TESTING OF ADULT ANIMALS?

We believe that the 13-week inhalation study of 2-ethoxyethanol provides evidence that vapor concentrations of 400 ppm are capable of producing adverse effects, which could include injury to blood cells and testes as well as kidney and liver damage. However, there is no evidence that such effects can occur at the exposure levels associated with normal safe handling and use.

8. WHAT EXPOSURE LIMITS DOES UNION CARBIDE RECOMMEND?

Recommended Exposure Limits for CELLOSOLVE® Solvent and CELLOSOLVE® Acetate

FOR WOMEN OF CHILDBEARING POTENTIAL:

Personal exposure limit 10 ppm
8-hour time-weighted average concentration in the air.

Short-term exposure limit 25 ppm
15-minute time-weighted average excursion, to be tolerated no more than four times daily with a minimum separation of one hour.

Avoid all skin contact
Wash thoroughly immediately after any exposure.

FOR OTHER PERSONS:

Personal exposure limit 35 ppm
8-hour time-weighted average concentration in the air.

Avoid all skin contact
Wash thoroughly immediately after any exposure.

9. WHY DOES UNION CARBIDE RECOMMEND A LIMIT FOR WOMEN OF CHILDBEARING POTENTIAL?

The early stages of pregnancy are critical with respect to possible induction of birth defects. Because pregnancy may not be identified during these early stages, it is necessary to limit the exposure for women of childbearing potential in order to protect the developing fetus. The recommended exposure level gives recognition to the heightened sensitivity of the developing embryo/fetus.

CELLOSOLVE® Solvent/CELLOSOLVE® Acetate

- 5 -

10. HAVE THERE BEEN ANY DOCUMENTED HEALTH EFFECTS OBSERVED IN HUMANS EXPOSED TO CELLOSOLVE® SOLVENT OR CELLOSOLVE® ACETATE?

No instances of birth defects or fetotoxicity attributable to exposure to either of these chemicals have ever been reported to our knowledge. Likewise, we are aware of no reports of blood cell or reproductive organ damage, or other adverse health effects in humans due to repeated exposure to normal concentrations of either chemical.

11. WHAT SPECIFIC ACTIONS DOES UNION CARBIDE RECOMMEND?

In addition to implementing the aforementioned exposure limits, we urge you to advise your employees, customers, contractors and any others who are or may be exposed to CELLOSOLVE® Solvent or CELLOSOLVE® Acetate of these findings, to assure that appropriate steps are taken to control exposure.

12. WHAT IS UNION CARBIDE DOING ABOUT CELLOSOLVE® SOLVENT/CELLOSOLVE® ACETATE EXPOSURE OR EXPOSURE LEVELS IN REGARD TO ITS EMPLOYEES?

Union Carbide is conveying the same information contained herein to our employees who are potentially exposed to CELLOSOLVE® Solvent and/or CELLOSOLVE® Acetate. Representative sampling of various aspects of our operations shows that exposure levels are generally well below the recommended limits.

13. WHAT DOES UNION CARBIDE RECOMMEND AS APPROPRIATE HANDLING PROCEDURES FOR CELLOSOLVE® SOLVENT AND CELLOSOLVE® ACETATE?

We urge our customers to use the information contained in our Material Safety Data Sheets as guidelines for their handling procedures.

14. SHOULD I CONSIDER REFORMULATION AWAY FROM THESE SOLVENTS AT THIS TIME?

There are several practical means of holding personal exposure within recommended limits. One is reformulation, substituting other products which have been suitably tested and shown to possess a lower hazard potential. Other steps involve combinations of engineering controls and personal protection.

CELLOSOLVE® Solvent/CELLOSOLVE® Acetate

- 6 -

15. IF I SHOULD CHOOSE TO REFORMULATE, WHAT DO YOU RECOMMEND?

To our understanding, there is no one solvent to replace CELLOSOLVE® Solvent or CELLOSOLVE® Acetate in the broad variety of end-use formulations that exist. However, Union Carbide will try to assist you in identifying potential reformulating systems in those operations to which you attach a high priority concern.

16. WHERE CAN I GET MORE INFORMATION ON THESE SUBJECTS?

Any questions or requests should be directed to your local Union Carbide sales representative.

F-48083A

0009F

Health NFPA Code 2
Flammability 3
Reactivity 0

MATERIAL SAFETY DATA SHEET

PRODUCT CODE: 4292-2J
DATE OF PREP. March 30, 1990

Section I

MANUFACTURER: RAFFI & SWANSON, INC.
100 EAMES STREET
WILMINGTON, MA 01887

MANUFACTURERS' CODE IDENTIFICATION:

Glossy Black Bake Enamel 4292-2J

EMERGENCY TELEPHONE NO.: 617-933-4200

PRODUCT CLASS: Solvent Based Compound

TRADE NAME: None

THIS PRODUCT IS A MIXTURE CONTAINING ONE OR MORE HAZARDOUS INGREDIENTS.

INFORMATION ON THE COMPOSITION OF RAFFI & SWANSON, INC. PRODUCTS IS CONFIDENTIAL PROPRIETARY INFORMATION AND IS PROVIDED SOLELY TO AID IN SAFE HANDLING OF THESE MATERIALS. USE OR DISCLOSURE FOR ANY OTHER PURPOSE IS EXPRESSLY FORBIDDEN.

Section II — HAZARDOUS INGREDIENTS

INGREDIENTS	CAS NUMBER	APPROX. PERCENT BY WEIGHT	TLV		LEL % BY VOL	VAPOR PRESSURE mm of Hg
			PPM	mg/M ³		
Xylol †	1330-20-7	48	100		1.0	5.9
n-Butyl Alcohol-skin †	71-36-3	7	50		1.0	4.3
Ethyl Benzene †	100-41-4	5	100		1.0	10
Formaldehyde *C* †	50-00-0	0.57	1		--Not Applicable--	
Carbon Black (dispersed in liquid)	1333-86-4	--	-----Not Applicable-----			

† Subject to the reporting requirements of EPA Reg. 40 CFR 372 (SARA Title III, Sec. 313).

C indicates a carcinogen or suspect carcinogen according to ACGIH, OSHA, NTP or IARC.

Section III — PHYSICAL DATA

EVAPORATION RATE: ☐ FASTER ☒ SLOWER, THAN ETHER

VAPOR DENSITY: ☒ HEAVIER ☐ LIGHTER, THAN AIR

BOILING RANGE: 243°-291°F PERCENT VOLATILE BY VOL: 68%

WEIGHT PER GAL: 8.13#

Section IV — FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION:

FLASH POINT (closed cup): 59°F lowest
flashing component

LEL: 1.0%

DOT: Flammable Liquid

OSHA: Flammable Liquid-Class IB

EXTINGUISHING MEDIA: Carbon dioxide, dry chemical or foam.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Keep containers tightly closed. Isolate from heat, sparks and open flame. Do not apply to hot surfaces.
Closed containers may explode when exposed to extreme heat.

SPECIAL FIRE FIGHTING PROCEDURES: Water may be ineffective. Water may be used to cool closed containers. Irritating or toxic gases may be present.
Use self-contained breathing apparatus.

TRW-01232

lab

J.T.BAKER INC. 222 RED SCHOOL LANE, PHILLIPSBURG, NJ 08865
M A T E R I A L S A F E T Y D A T A S H E E T
24-HOUR EMERGENCY TELEPHONE -- (201) 859-2151
CHEMTREC # (800) 424-9300 -- NATIONAL RESPONSE CENTER # (800) 424-8802

G 74 -04
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GLYCERIN

PAGE: 1
ISSUED: 09/20/89

J.T.BAKER INC., 222 RED SCHOOL LANE, PHILLIPSBURG, NJ 08865

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SECTION I - PRODUCT IDENTIFICATION

=====

PRODUCT NAME: GLYCERIN
COMMON SYNONYMS: 1,2,3-PROPANETRIOL; GLYCEROL; GLYCYL ALCOHOL
CHEMICAL FAMILY: CARBOHYDRATES AND POLYSACCHARIDES
FORMULA: HOCH₂CHOHCH₂OH
FORMULA WT.: 92.10
CAS NO.: 56-81-5
NIOSH/RTCS NO.: MA8050000
PRODUCT USE: LABORATORY REAGENT
PRODUCT CODES: 2140

=====

PRECAUTIONARY LABELING

=====

BAKER SAF-T-DATA* SYSTEM

HEALTH	-	1	SLIGHT
FLAMMABILITY	-	1	SLIGHT
REACTIVITY	-	0	NONE
CONTACT	-	1	SLIGHT

LABORATORY PROTECTIVE EQUIPMENT

GOGGLES; LAB COAT

U.S. PRECAUTIONARY LABELING

CAUTION

MAY CAUSE IRRITATION. MAY BE HARMFUL IF SWALLOWED.
DURING USE AVOID CONTACT WITH EYES, SKIN, CLOTHING. WASH THOROUGHLY AFTER
HANDLING. WHEN NOT IN USE KEEP IN TIGHTLY CLOSED CONTAINER.

INTERNATIONAL LABELING

AVOID CONTACT WITH EYES. AFTER CONTACT WITH SKIN, WASH IMMEDIATELY WITH
PLENTY OF WATER. KEEP CONTAINER TIGHTLY CLOSED.

SAF-T-DATA* STORAGE COLOR CODE: ORANGE (GENERAL STORAGE)

CONTINUED ON PAGE: 2

TRW-01233

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G 74 -04
EFFECTIVE: 07/25/89

GLYCERIN

PAGE: 2
ISSUED: 09/20/89

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SECTION II - COMPONENTS

=====

COMPONENT	CAS NO.	WEIGHT %	OSHA/PEL	ACGIH/TLV
GLYCEROL, ANHYDROUS	56-81-5	95-100	10 MG/M3	10 MG/M3

=====

=====

SECTION III - PHYSICAL DATA

=====

BOILING POINT: 290 C (554 F)
(AT 760 MM HG)

VAPOR PRESSURE (MMHG): <0.1
(20 C)

MELTING POINT: 13 C (64 F)
(AT 760 MM HG)

VAPOR DENSITY (AIR=1): 3.1

SPECIFIC GRAVITY: 1.26
(H2O=1)

EVAPORATION RATE: N/A

SOLUBILITY(H2O): COMPLETE (100%)

% VOLATILES BY VOLUME: 0
(21 C)

Prt. N/A

ODOR THRESHOLD (P.P.M.): N/A

PHYSICAL STATE: LIQUID

COEFFICIENT WATER/OIL DISTRIBUTION: N/A

APPEARANCE & ODOR: CLEAR, COLORLESS VISCOUS LIQUID. ODORLESS.

=====

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

=====

FLASH POINT (CLOSED CUP): 199 C (390 F)

NEPA 704M RATING: 1-1-0

AUTOIGNITION TEMPERATURE: N/A

FLAMMABLE LIMITS: UPPER - N/A LOWER - 0.9 %

FIRE EXTINGUISHING MEDIA

USE EXTINGUISHING MEDIA APPROPRIATE FOR SURROUNDING FIRE.

SPECIAL FIRE-FIGHTING PROCEDURES

FIREFIGHTERS SHOULD WEAR PROPER PROTECTIVE EQUIPMENT AND SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN POSITIVE PRESSURE MODE.

CONTINUED ON PAGE: 3

G 04 -04

GLYCERIN

PAGE: 3

EFFECTIVE: 07/25/89

ISSUED: 09/20/89

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SECTION IV - FIRE AND EXPLOSION HAZARD DATA (CONTINUED)

=====

UNUSUAL FIRE & EXPLOSION HAZARDS

CONTACT WITH STRONG OXIDIZERS MAY CAUSE FIRE OR EXPLOSION.

TOXIC GASES PRODUCED

CARBON MONOXIDE, CARBON DIOXIDE, ACRYLEIN

EXPLOSION DATA-SENSITIVITY TO MECHANICAL IMPACT

NONE IDENTIFIED.

EXPLOSION DATA-SENSITIVITY TO STATIC DISCHARGE

NONE IDENTIFIED.

=====

SECTION V - HEALTH HAZARD DATA

=====

THRESHOLD LIMIT VALUE (TLV/TWA): 10 MG/M³

SHORT-TERM EXPOSURE LIMIT (STEL): NOT ESTABLISHED

PERMISSIBLE EXPOSURE LIMIT (PEL): 10 MG/M³

TOXICITY OF COMPONENTS

ORAL RAT LD50 FOR GLYCEROL, ANHYDROUS

12.6 G/KG

INTRAPERITONEAL MOUSE LD50 FOR GLYCEROL, ANHYDROUS

63 MG/KG

SUBCUTANEOUS RAT LD50 FOR GLYCEROL, ANHYDROUS

100 MG/KG

INTRAVENOUS RAT LD50 FOR GLYCEROL, ANHYDROUS

5566 MG/KG

CARCINOGENICITY: NTP: NO IARC: NO Z LIST: NO OSHA REG: NO

CARCINOGENICITY

NONE IDENTIFIED.

REPRODUCTIVE EFFECTS

NONE IDENTIFIED.

CONTINUED ON PAGE: 4

G 4 -04

GLYCERIN

PAGE: 4

EFFECTIVE: 07/25/89

ISSUED: 09/20/89

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SECTION V - HEALTH HAZARD DATA (CONTINUED)

=====

EFFECTS OF OVEREXPOSURE

INHALATION: COUGHING, DIFFICULT BREATHING

SKIN CONTACT: IRRITATION, PROLONGED CONTACT MAY CAUSE DERMATITIS

EYE CONTACT: IRRITATION

SKIN ABSORPTION: NONE IDENTIFIED

INGESTION: HEADACHE, NAUSEA, VOMITING, GASTROINTESTINAL IRRITATION,
CONVULSIONS, UNCONSCIOUSNESS

CHRONIC EFFECTS: NONE IDENTIFIED

TARGET ORGANS

EYES, SKIN, MUCOUS MEMBRANES

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE

NONE IDENTIFIED

PRIMARY ROUTES OF ENTRY

INHALATION, INGESTION, SKIN CONTACT, EYE CONTACT

EMERGENCY AND FIRST AID PROCEDURES

INGESTION: IF SWALLOWED AND THE PERSON IS CONSCIOUS, IMMEDIATELY GIVE
LARGE AMOUNTS OF WATER. GET MEDICAL ATTENTION.

INHALATION: IF A PERSON BREATHES IN LARGE AMOUNTS, MOVE THE EXPOSED
PERSON TO FRESH AIR.

SKIN CONTACT: IN CASE OF CONTACT, IMMEDIATELY WASH SKIN WITH PLENTY OF
SOAP AND WATER FOR AT LEAST 15 MINUTES.

EYE CONTACT: IN CASE OF EYE CONTACT, IMMEDIATELY FLUSH WITH PLENTY OF
WATER FOR AT LEAST 15 MINUTES.

SARA/TITLE III HAZARD CATEGORIES AND LISTS

ACUTE: YES CHRONIC: YES FLAMMABILITY: NO PRESSURE: NO REACTIVITY: NO

CONTINUED ON PAGE: 5

G 74 -04
EFFECTIVE: 07/25/89

GLYCERIN

PAGE: 6
ISSUED: 09/20/89

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SECTION IX - STORAGE AND HANDLING PRECAUTIONS

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SAF-T-DATA* STORAGE COLOR CODE: ORANGE (GENERAL STORAGE)

STORAGE REQUIREMENTS

KEEP CONTAINER TIGHTLY CLOSED. SUITABLE FOR ANY GENERAL CHEMICAL STORAGE AREA. ISOLATE FROM INCOMPATIBLE MATERIALS.

=====

SECTION X - TRANSPORTATION DATA AND ADDITIONAL INFORMATION

=====

DOMESTIC (D.O.T.)

PROPER SHIPPING NAME: CHEMICALS, N.O.S. (NON-REGULATED)

INTERNATIONAL (I.M.O.)

PROPER SHIPPING NAME: CHEMICALS, N.O.S. (NON-REGULATED)
MARINE POLLUTANTS: NO

A.L. (I.C.A.O.)

PROPER SHIPPING NAME: CHEMICALS, N.O.S. (NON-REGULATED)

U.S. CUSTOMS HARMONIZATION NUMBER: 1520900000

=====

N/A = NOT APPLICABLE OR NOT AVAILABLE
N/E = NOT ESTABLISHED

THE INFORMATION IN THIS MATERIAL SAFETY DATA SHEET MEETS THE REQUIREMENTS OF THE UNITED STATES OCCUPATIONAL SAFETY AND HEALTH ACT AND REGULATIONS PROMULGATED THEREUNDER (29 CFR 1910.1200 ET. SEQ.) AND THE CANADIAN WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM. THIS DOCUMENT IS INTENDED ONLY AS A GUIDE TO THE APPROPRIATE PRECAUTIONARY HANDLING OF THE MATERIAL BY A PERSON TRAINED IN, OR SUPERVISED BY A PERSON TRAINED IN, CHEMICAL HANDLING. THE USER IS RESPONSIBLE FOR DETERMINING THE PRECAUTIONS AND DANGERS OF THIS CHEMICAL FOR HIS OR HER PARTICULAR APPLICATION. DEPENDING ON USAGE, PROTECTIVE CLOTHING INCLUDING EYE AND FACE GUARDS AND RESPIRATORS MUST BE USED TO AVOID CONTACT WITH MATERIAL OR BREATHING CHEMICAL VAPORS/FUMES.

EXPOSURE TO THIS PRODUCT MAY HAVE SERIOUS ADVERSE HEALTH EFFECTS. THIS CHEMICAL MAY INTERACT WITH OTHER SUBSTANCES. SINCE THE POTENTIAL USES ARE SO VARIED, BAKER CANNOT WARN OF ALL OF THE POTENTIAL DANGERS OF USE

CONTINUED ON PAGE: 7

J.T.BAKER INC. 222 RED SCHOOL LANE, PHILLIPSBURG, NJ 08865
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G 4 -04

GLYCERIN

PAGE: 7

EFFECTIVE: 07/25/89

ISSUED: 09/20/89

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OR INTERACTION WITH OTHER CHEMICALS OR MATERIALS. BAKER WARRANTS THAT THE CHEMICAL MEETS THE SPECIFICATIONS SET FORTH ON THE LABEL. BAKER DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR PURPOSE. THE USER SHOULD RECOGNIZE THAT THIS PRODUCT CAN CAUSE SEVERE INJURY AND EVEN DEATH, ESPECIALLY IF IMPROPERLY HANDLED OR THE KNOWN DANGERS OF USE ARE NOT HEEDED. READ ALL PRECAUTIONARY INFORMATION. AS NEW DOCUMENTED GENERAL SAFETY INFORMATION BECOMES AVAILABLE, BAKER WILL PERIODICALLY REVISE THIS MATERIAL SAFETY DATA SHEET. IF YOU HAVE ANY QUESTIONS, PLEASE CALL CUSTOMER SERVICE (1-800-JTBAKER) FOR ASSISTANCE.

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* TRADEMARKS OF J.T.BAKER INC.

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APPROVED BY QUALITY ASSURANCE DEPARTMENT.

-- LAST PAGE --



Loctite Corporation
Industrial Group

705 North Mountain Road
New York, New York 10022-1099
(212) 512-1000



MATERIAL SAFETY DATA SHEET

I. PRODUCT IDENTIFICATION

Product Name GRADE A Part No. 88
Product Type Anaerobic Formula No. _____

II. COMPOSITION

Ingredients	% by Wt.	Hazard
Polyglycol dimethacrylates	90-95	
Hydroperoxide	5-7	Toxic, Irritant
Trialkylamine	2-3	Toxic

III. CHEMICAL AND PHYSICAL PROPERTIES

Vapor Pressure <u>< 5 mm at 80°F</u>	Specific Gravity <u>1.071 at 80°F</u>
Vapor Density _____	Boiling Point <u>> 300°F</u>
Solubility in Water <u>Slight</u>	pH _____
Appearance <u>Red liquid</u>	Odor <u>Mild</u>

VI. REACTIVITY DATA

Stability ☒ Stable ☐ Unstable
Hazardous Polymerization ☐ May Occur ☒ Will Not Occur

Hazardous Decomposition Products (non-thermal)

Incompatibility

V. SPILL OR LEAK AND DISPOSAL PROCEDURES

Steps to be taken in case of spill or leak

Soak up in an inert absorbent. Store in partly-filled, closed container until disposal.

Recommended methods of disposal

Bury or incinerate in accordance with EPA and local regulations.

VIII. STORAGE AND HANDLING PROCEDURES

Storage

Store below 110°F to preserve shelf-life.

Handling

Avoid prolonged skin contact.

IX. SHIPPING REGULATIONS

Type or Class DOT Unrestricted

IATA Unrestricted

Proper Shipping Name DOT

IATA

Prepared By Martin Hauser

Title Vice President - Environmental Health and Safety

Date 11-3-82

MATERIAL SAFETY DATA SHEET**I. PRODUCT IDENTIFICATION**

Product Name	<u>GRADE CVV</u>	Part No.	<u>82</u>
Product Type	<u>Anaerobic</u>	Formula No.	<u></u>

II. COMPOSITION

<u>Ingredients</u>	<u>% by Wt.</u>	<u>Hazard</u>
Polyglycol dimethacrylates	40-45	See Section IV. ↓
Bis-Phenol A Fumarate resins	30-35	
Polyglycol dioctoates	15-20	
Cumene Hydroperoxide*	~4	
N,N-Dialkyltoluidines	<1	
Saccharin**	<1	

*In a single test, pure cumene hydroperoxide caused tumors in one of thirty experimental animals when injected under the skin. **Saccharin has been shown to cause tumors in experimental animals when fed in large amounts for prolonged periods. In light of the low concentration of these components in the product, it is our best technical judgment that normal use of this product poses no such hazards. These warnings are present only to comply with OSHA regulations.

III. CHEMICAL AND PHYSICAL PROPERTIES

Vapor Pressure	<u>< 5 mm at 80°F</u>	Specific Gravity	<u>1.087 at 80°F</u>
Vapor Density	<u>Unknown</u>	Boiling Point	<u>> 300°F</u>
Solubility in Water	<u>Slight</u>	pH	<u>dna</u>
Appearance	<u>Blue Liquid</u>	Odor	<u>Mild</u>

IV. TOXICITY AND HEALTH HAZARD DATA

Toxicity
Est. Oral LD 50 >5000 mg/kg TLV Does not apply
Est. Dermal LD 50 >2000 mg/kg
Symptoms of Overexposure May cause dermatitis on prolonged contact in sensitive individuals.

Emergency Treatment Procedures
Ingestion: Do not induce vomiting. Keep individual calm. Obtain medical attention.
Inhalation: Does not apply.
Skin Contact: Flush with water.
Eye Contact: Flush with water.

Personal Protection
Eyes: Safety glasses or goggles recommended.
Skin: Rubber or plastic gloves recommended.
Ventilation: Not normally necessary.

GRADE CVV

V. FLAMMABILITY AND EXPLOSIVE PROPERTIES

Flash point > 200°F Method T.C.C.
Explosive Limits (% by volume in air) Lower dna % Upper dna %
Recommended Extinguishing Agents CO2, Foam, Dry Chemical
Hazardous Products Formed by Fire or Thermal Decomposition: Irritating organic vapors.
Unusual Fire or Explosion Hazards: None
Compressed Gasses Name None
Pressure at Room Temperature _____

VI. REACTIVITY DATA

Stability ☒ Stable ☐ Unstable
Hazardous Polymerization ☐ May Occur ☒ Will Not Occur
Hazardous Decomposition Products (non-thermal)
None
Incompatibility None

VII. SPILL OR LEAK AND DISPOSAL PROCEDURES

Steps to be taken in case of spill or leak: Soak up in an inert absorbent. Store in partly-filled, closed container until disposal.
Recommended methods of disposal: Bury or incinerate in accordance with EPA and local regulations.

VIII. STORAGE AND HANDLING PROCEDURES

Storage: Store below 110°F to preserve shelf-life.
Handling: Avoid prolonged skin contact.

IX. SHIPPING REGULATIONS

Type or Class DOT Unrestricted
IATA Unrestricted

Prepared By: Martin Hauser
Title: Vice President - Environmental Health and Safety
Date: November 1, 1985

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME L.H.SHINGLE CO.		EMERGENCY TELEPHONE NO. 215-825-5500
ADDRESS (Number, Street, City, State, and ZIP Code) 500 GRAVERS RD., PLYMOUTH MEETING, PA. 19462		
CHEMICAL NAME AND SYNONYMS GRAKO BELT DRESSING		TRADE NAME AND SYNONYMS
CHEMICAL FAMILY	FORMULA	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS TRICHLOROETHANE	18.6		FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	198°F.	SPECIFIC GRAVITY (H ₂ O=1)	1.2
VAPOR PRESSURE (mm Hg.)	15	PERCENT VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)	1.1	EVAPORATION RATE (_____ =1)	
SOLUBILITY IN WATER	nil		
APPEARANCE AND ODOR PALE YELLOW CLEAR LIQUID; ETHERIAL ODOR			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	FLAMMABLE LIMITS	Lel	Uel
EXTINGUISHING MEDIA CO₂, DRY CHEMICAL			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	TRICHLOROETHANE-300 PPM.
EFFECTS OF OVEREXPOSURE	MAY CAUSE SKIN IRRITATION; ANAESTHETIC EFFECT, MAY CAUSE DIZZY OR DRUNKEN FEELING; IRRITATE EYES.
EMERGENCY AND FIRST AID PROCEDURES	

SECTION VI - REACTIVITY DATA			
STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATIBILITY (Materials to avoid)			
HAZARDOUS DECOMPOSITION PRODUCTS			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
ABSORBANT OR WIPES, VENTILATE AREA	
WASTE DISPOSAL METHOD	
INCINERATE OR LANDFILL	

SECTION VIII - SPECIAL PROTECTION INFORMATION		
RESPIRATORY PROTECTION (Specify type)		
VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General)	OTHER
PROTECTIVE GLOVES		EYE PROTECTION
OTHER PROTECTIVE EQUIPMENT		

SECTION IX - SPECIAL PRECAUTIONS	
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
OTHER PRECAUTIONS	

MATERIAL SAFETY DATA SHEET

FOR COATINGS, RESINS AND RELATED MATERIALS

(Approved by U.S. Department of Labor "Essentially Similar" to Form OSHA-20)

DATE OF PREP MAY 1978

Section I

MANUFACTURER'S NAME TECHNICAL COATINGS LABORATORY, INC.
STREET ADDRESS 205 OLD FARMS ROAD CITY, STATE, AND ZIP CODE AVON CT 06001
EMERGENCY TELEPHONE NO 203/693-4772
PRODUCT CLASS OXIDIZING ALKYD RESIN MANUFACTURERS CODE IDENTIFICATION 2937 DARK
TRADE NAME GREEN AIR DRY ENAMEL

Section II - HAZARDOUS INGREDIENTS

INGREDIENT	PERCENT	TLV		LEL	VAPOR PRESSURE
		PPM	mg/M ³		
PHTHALO GREEN PIGMENT	1.4				
LIGHT CHROME YELLOW PIGMENT	1.3	100			
CARBON BLACK PIGMENT	0.3				
MISCELLANEOUS TINTS PIGMENT	0.7				
ALKYD RESINS	39.7				
MISCELLANEOUS DRIERS, ADDITIVES	2.2	100			
AROMATIC HYDROCARBONS	13.8	100			
ALIPHATIC HYDROCARBONS	40.6	400			

Section III - PHYSICAL DATA

BOILING RANGE VAPOR DENSITY ☐ HEAVIER ☒ LIGHTER THAN AIR
EVAPORATION RATE ☐ FASTER ☒ SLOWER THAN ETHER PERCENT VOLATILE BY VOLUME 54.4 WEIGHT PER GALLON 7.7

Section IV - FIRE AND EXPLOSION HAZARD DATA

DOT CATEGORY RED LABEL FLASH POINT BELOW 80°F. LEL N/A
EXTINGUISHING MEDIA FOAM, CO₂, DRY CHEMICAL.
UNUSUAL FIRE AND EXPLOSION HAZARDS SOLVENT VAPOR MAY FORM EXPLOSIVE MIXTURE.
SPECIAL FIRE FIGHTING PROCEDURES USE SELF-CONTAINED BREATHING APPARATUS OR AIR MASKS. CONTAINERS EXPOSED TO FIRE SHOULD BE KEPT COOL WITH WATER SPRAY.

Section V — HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE N/A

EFFECTS OF OVEREXPOSURE SLIGHT SKIN IRRITANT, MODERATELY TOXIC WHEN INGESTED, VAPOR OVEREXPOSURE DIZZINESS, FATIGUE, NAUSEA.
CAUTION PAINT CONTAINS LEAD.

EMERGENCY AND FIRST AID PROCEDURES

CALL PHYSICIAN.

Section VI — REACTIVITY DATA

STABILITY ☐ UNSTABLE ☒ STABLE

INCOMPATIBILITY (Materials to avoid)

HAZARDOUS DECOMPOSITION PRODUCTS

OXIDE OF CARBON

CONDITIONS TO AVOID DIRECT EXPOSURE TO HIGH HEAT.
DETERIORATION INCREASES WITH INCREASING
TEMPERATURE AND TIME.

HAZARDOUS POLYMERIZATION ☐ MAY OCCUR ☒ WILL NOT OCCUR

CONDITIONS TO AVOID N/A

Section VII — SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED SOAK UP WITH ABSORBENT MATERIAL. REMOVE ANY
SOURCE OF IGNITION AND AVOID PROLONGED BREATHING OF VAPORS.

WASTE DISPOSAL METHOD COLLECT IN METAL DRUMS AND SEAL FOR REMOVAL, FOR DISPOSAL AS PER
E.P.A. SPECIFICATIONS.

Section VIII — SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION IN AREA WITH EXCESSIVE VAPORS - SELF-CONTAINED BREATHING APPARATUS
(LOCAL VENTILATION IS USUALLY ALL THAT IS NEEDED).

VENTILATION LOCAL POSITIVE MECHANICAL VENTILIZATION-CAUTION- USE ONLY EXPLOSION
PROOF EQUIPMENT.

PROTECTIVE GLOVES POLYETHYLENE GLOVES.

EYE PROTECTION SAFETY GLASSES WITH SIDE SHIELDS.

OTHER PROTECTIVE EQUIPMENT

Section IX — SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING USE WITH ADEQUATE VENTILATION, AVOID BREATHING
OF VAPORS. AVOID PROLONGED OR REPEATED SKIN CONTACT.

OTHER PRECAUTIONS KEEP AWAY FROM OPEN FLAME, EXCESSIVE HEAT AND SPARKS. SOLVENT IS
FLAMMABLE AND VAPOR MAY FORM EXPLOSIVE MIXTURES WITH AIR.

0908-2618

TRW-01248

Health 2
Flammability 3
Reactivity 0

NFPA Code

MATERIAL SAFETY
DATA SHEET

PRODUCT CODE: 4292-6CJ12G

DATE OF PREP. August 28, 1990

Section I

MANUFACTURER: RAFFI & SWANSON, INC.
100 EAMES STREET
WILMINGTON, MA 01887

MANUFACTURERS' CODE IDENTIFICATION:

Green Bake Enamel 4292-6CJ12G

EMERGENCY TELEPHONE NO.: 617-933-4200

PRODUCT CLASS:

Solvent Based Coating

TRADE NAME: None

THIS PRODUCT IS A MIXTURE CONTAINING ONE OR MORE HAZARDOUS INGREDIENTS.

INFORMATION ON THE COMPOSITION OF RAFFI & SWANSON, INC. PRODUCTS IS CONFIDENTIAL PROPRIETARY INFORMATION AND IS PROVIDED SOLELY TO AID IN SAFE HANDLING OF THESE MATERIALS. USE OR DISCLOSURE FOR ANY OTHER PURPOSE IS EXPRESSLY FORBIDDEN.

Section II — HAZARDOUS INGREDIENTS

INGREDIENTS	CAS NUMBER	APPROX. PERCENT BY WEIGHT	TLV		LEL % BY VOL	VAPOR PRESSURE mm of Hg
			PPM	mg/M ³		
Xylol †	1330-20-7	37	100		1.0	5.9
n-Butyl Alcohol-skin †	71-36-3	5	50		1.4	4.3
Ethyl Benzene †	100-41-4	4	100		1.0	10
Formaldehyde *C* †	50-00-0	0.45	1		--Not Applicable--	
Talc (dispersed in liquid)	14807-96-6	--	-----Not Applicable-----			

† Subject to the reporting requirements of EPA Reg. 40 CFR 372 (SARA Title III, Sec. 313).

C indicates a carcinogen or suspect carcinogen according to ACGIH, OSHA, NTP or IARC.

Section III — PHYSICAL DATA

EVAPORATION RATE: ☐ FASTER ☒ SLOWER, THAN ETHER

VAPOR DENSITY: ☒ HEAVIER ☐ LIGHTER, THAN AIR

BOILING RANGE: 243°-291°F PERCENT VOLATILE BY VOL: 63%

WEIGHT PER GAL: 9.72#

Section IV — FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION:

FLASH POINT (closed cup): 59°F lowest
flashing component

LEL: 1.0%

DOT: Flammable Liquid

OSHA: Flammable Liquid-Class IB

EXTINGUISHING MEDIA: Carbon dioxide, dry chemical or foam.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Keep containers tightly closed. Isolate from heat, sparks and open flame. Do not apply to hot surfaces.
ed containers may explode when exposed to extreme heat.

SPECIAL FIRE FIGHTING PROCEDURES: Water may be ineffective. Water may be used to cool closed containers. Irritating or toxic gases may be present.
Use self-contained breathing apparatus.

TRW-01249

Section V — HEALTH HAZARD DATA (Based on data for individual ingredients)

THRESHOLD LIMIT VALUE - See Section II

EFFECTS OF OVEREXPOSURE

CHRONIC TOXICITY: See Section IX.

INHALATION: Vapor irritating to eyes, nose, and throat. Can cause headache, dizziness, nausea, weakness, loss of consciousness. Prolonged overexposure may cause permanent injury.

SKIN: Penetrates skin.

Prolonged and repeated contact may cause drying of the skin, and absorption of harmful amounts.

EYE CONTACT: Burning and irritation.

INGESTION: Do not take internally. May cause nausea, vomiting, diarrhea and other toxic effects.

EMERGENCY AND FIRST AID PROCEDURES

INHALATION: Provide fresh air. Give artificial respiration or oxygen if necessary. CALL A PHYSICIAN.

SKIN: Wash thoroughly with soap and water. Remove contaminated clothing and shoes. Wash clothes thoroughly before re-use.

EYE CONTACT: Flush with water for at least 15 minutes. SEE PHYSICIAN.

INGESTION: DO NOT INDUCE VOMITING.

If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into lungs. CALL A PHYSICIAN.

Section VI — REACTIVITY DATA

STABILITY: ☐ UNSTABLE ☒ STABLE

HAZARDOUS POLYMERIZATION: ☐ MAY OCCUR ☒ WILL NOT OCCUR

HAZARDOUS DECOMPOSITION PRODUCTS: Combustion produces carbon monoxide and carbon dioxide. Unidentified organic compounds may be formed.

MATERIALS AND CONDITIONS TO AVOID: Strong acids, strong alkalis, strong oxidizers.

Section VII — SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Remove all sources of ignition. Avoid breathing vapors. Ventilate area. Remove with inert absorbent and non-sparking tools.

WASTE DISPOSAL METHOD: Incinerate in approved facility. Do not incinerate closed containers. Dispose in accordance with local, state and federal regulations.

Section VIII — SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Avoid breathing concentrated vapors or overspray particles if sprayed. In confined or poorly ventilated areas, use NIOSH approved mask with chemical canister or supplied air.

VENTILATION: Provide general mechanical ventilation or local exhaust ventilation sufficient to keep concentration of solvent vapors below 50 PPM

PROTECTIVE GLOVES: Use chemical resistant, impervious gloves for contact.

EYE PROTECTION: Safety goggles or face shield where splashes can occur.

OTHER PROTECTIVE EQUIPMENT:

Section IX — SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: ☒ FLAMMABLE ☐ COMBUSTIBLE

Keep in closed containers. Avoid sparks or flame when handling. Can be stored under ambient conditions. Keep closures tight and containers upright to prevent leakage.

OTHER PRECAUTIONS: Avoid contact with the skin. Use good personal hygiene practices. Wash hands thoroughly before eating/drinking/smoking/using toilet facilities.

Inhalation of formaldehyde has been shown to cause cancer in laboratory animals.

0908-2620

Health 2
Flammability 3
Reactivity 0

MATERIAL SAFETY DATA SHEET

PRODUCT CODE: 9734-CC21G
DATE OF PREP. Jan. 21, 1986

Section I

APPROVED

MANUFACTURER: RAFFI & SWANSON, INC.
100 EAMES STREET
WILMINGTON, MA 01887

MANUFACTURERS' CODE IDENTIFICATION:
9734-CC21G Green Bake Enamel

APR 21 1987

EMERGENCY TELEPHONE NO.: 617-933-4200

PRODUCT CLASS: Solvent Based Coating

ENVIRONMENTAL
ENGINEERING

TRADE NAME: None

THIS PRODUCT IS A MIXTURE CONTAINING ONE OR MORE HAZARDOUS INGREDIENTS.

INFORMATION ON THE COMPOSITION OF RAFFI & SWANSON, INC. PRODUCTS IS CONFIDENTIAL PROPRIETARY INFORMATION AND IS PROVIDED SOLELY TO AID IN SAFE HANDLING OF THESE MATERIALS. USE OR DISCLOSURE FOR ANY OTHER PURPOSE IS EXPRESSLY FORBIDDEN.

Section II — HAZARDOUS INGREDIENTS

INGREDIENTS	CAS NUMBER	APPROX. PERCENT BY WEIGHT	TLV		LEL % BY VOL	VAPOR PRESSURE mm of Hg
			PPM	mg/M ³		
Propylene Glycol Methyl Ether (Dowanol PM)	107-98-2	15	100		Not Avail.	8
Propylene Glycol Methyl Ether Acetate (Dowanol PM Acetate)	108-65-5	10	None est.		1.5	3.7
Dipropylene Glycol Methyl Ether (Dowanol DPM)	34590-94-8	5	None est. (100recomm)		Not Avail.	0.05
Toluol	108-88-3	10	100		1.2	22
n-Butyl Alcohol - Skin	71-36-3	< 5	50		1.4	4.3
iso-Butyl Alcohol	78-83-1	< 5	50		1.7	8
Xylol	1330-20-7	< 5	100		1.0	5.9
Formaldehyde *C*	50-00-0	0.07	1	-----Not	Applicable-----	

Section III — PHYSICAL DATA

EVAPORATION RATE: ☐ FASTER ☒ SLOWER, THAN ETHER

VAPOR DENSITY: ☒ HEAVIER ☐ LIGHTER, THAN AIR

BOILING RANGE: 225-298°F PERCENT VOLATILE BY VOL: 65%

WEIGHT PER GAL: 10.3#

Section IV — FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION:

DOT: Flammable Liquid

OSHA: Flammable Liquid-Class IB

FLASH POINT (closed cup): 40°F lowest
flashing component

LEL: 1.0%

EXTINGUISHING MEDIA: Carbon dioxide, dry chemical or foam.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Keep containers tightly closed. Isolate from heat, sparks and open flame. Do not apply to hot surfaces. Closed containers may explode when exposed to extreme heat.

SPECIAL FIRE FIGHTING PROCEDURES: Water may be ineffective. Water may be used to cool closed containers. Irritating or toxic gases may be present. Use self-contained breathing apparatus.

INFORMATION PRESENTED IS ACCURATE TO THE BEST KNOWLEDGE OF RAFFI & SWANSON, INC., RAFFI AND SWANSON
LEGAL RESPONSIBILITY FOR LOSS OR INJURY RESULTING FROM THE USE OF THESE DATA OR ANY MATERIALS DESIGN

0908-2621

S-527

TRW-01251

MATERIAL SAFETY DATA SHEET

PENNZOIL COMPANY

I PRODUCT IDENTIFICATION

Manufacturer's Name	PENNZOIL CO., GUMOUT DIVISION		CAS Number: MIXTURE										
Address	410 GATEWAY CENTER PITTSBURGH, PENNSYLVANIA 152221469	MSDS Code: 000951											
		NFPA Hazard Identification <table border="1"> <tr> <td>Degree of Hazard</td> <td>Hazard Ratings</td> </tr> <tr> <td>Health: 1</td> <td>0 - Least</td> </tr> <tr> <td>Fire: 3</td> <td>1 - Slight</td> </tr> <tr> <td>Reactivity: 0</td> <td>2 - Moderate</td> </tr> <tr> <td></td> <td>3 - High</td> </tr> <tr> <td></td> <td>4 - Extreme</td> </tr> </table>		Degree of Hazard	Hazard Ratings	Health: 1	0 - Least	Fire: 3	1 - Slight	Reactivity: 0	2 - Moderate		3 - High
Degree of Hazard	Hazard Ratings												
Health: 1	0 - Least												
Fire: 3	1 - Slight												
Reactivity: 0	2 - Moderate												
	3 - High												
	4 - Extreme												
Emergency Telephone No.	(713) 236-6070												
Trade Name	JET SPRAY, GUMOUT CARBURETOR AND CHOKE CLEANER												
Synonyms	CARBURETOR AND CHOKE CLEANER												

II INGREDIENTS

COMPONENT NAME CAS NUMBER	HAZARDOUS IN BLEND	PERCENTAGE MIN MAX	COMPONENT EXPOSURE LIMITS	UNITS
PETROLEUM SOLVENT PROPRIETARY	YES	65.00 TO 80.00	OSHA PEL ACGIH TLV	NO LIMIT NO LIMIT
ALCOHOL PROPRIETARY	YES	5.00 TO 15.00	OSHA PEL ACGIH TLV	NO LIMIT NO LIMIT
SURFACTANTS PROPRIETARY	NO	1.00 TO 5.00	OSHA PEL ACGIH TLV	NO LIMIT NO LIMIT
HYDROCARBON PROPELLANT MIXTURE	YES	5.00 TO 25.00	ACGIH TLV 1800.0000	MG/M3

BY: ENVIRONMENTAL, SAFETY & HEALTH
(713) 546-8512

EFFECTIVE DATE: NOVEMBER 15, 1985

DISCLAIMER OF WARRANTY:

THE INFORMATION CONTAINED HEREIN IS BASED UPON DATA AVAILABLE TO US, AND REFLECTS OUR BEST PROFESSIONAL JUDGEMENT. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY USE, OR ANY OTHER WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF SUCH DATA, THE RESULTS TO BE OBTAINED FROM THE USE THEREOF, OR THAT ANY SUCH USE DOES NOT INFRINGE ANY PATENT. SINCE THE INFORMATION CONTAINED HEREIN MAY BE APPLIED UNDER CONDITIONS OF USE BEYOND OUR CONTROL AND WITH WHICH WE MAY BE UNFAMILIAR, WE DO NOT ASSUME ANY RESPONSIBILITY FOR THE RESULTS OF SUCH APPLICATION. THIS INFORMATION IS FURNISHED UPON THE CONDITION THAT THE PERSON RECEIVING IT SHALL MAKE HIS OWN DETERMINATION OF THE SUITABILITY OF THE MATERIAL FOR HIS PARTICULAR PURPOSE.

REQUIRED UNDER USDL SAFETY AND HEALTH REGULATIONS FOR SHIP REPAIRING, SHIPBUILDING, AND SHIPBREAKING (29 CFR 1915, 1916, 1917).

III HEALTH EFFECT INFORMATION**EYE CONTACT**

AVOID EYE CONTACT. THIS PRODUCT MAY BE MILDLY TO MODERATELY IRRITATING TO THE EYE UPON DIRECT CONTACT.

SKIN CONTACT

AVOID SKIN CONTACT. THIS PRODUCT MAY CAUSE SKIN IRRITATION UPON DIRECT CONTACT. PROLONGED OR REPEATED CONTACT MAY RESULT IN CONTACT DERMATITIS WHICH IS CHARACTERIZED BY DRYNESS, CHAPPING, AND REDDENING. THIS CONDITION MAY MAKE THE SKIN MORE SUSCEPTIBLE TO OTHER IRRITANTS, SENSITIZERS, AND DISEASE. PRE-EXISTING SKIN CONDITIONS MAY MAKE THE SKIN MORE SUSCEPTIBLE AND FACILITATE UPTAKE BY THIS ROUTE.

INHALATION

AVOID PROLONGED INHALATION OF VAPORS. EXPOSURE TO VAPORS MAY BE IRRITATING TO THE THROAT AND LUNGS. WHEN HIGH CONCENTRATIONS ARE INHALED, HUMAN SIGNS MAY INCLUDE A REDDENING OF THE FACE AND A FEELING OF INCREASED BODY HEAT. IN ADDITION, DISTURBED VISION, DIZZINESS, TREMORS, SALIVATION, CARDIAC STRESS, DROWSINESS, DULLNESS, NUMBNESS, WEAKNESS, HEADACHE, NAUSEA, AND CONFUSION, AS WELL AS RESPIRATORY DIFFICULTIES MAY BE APPARENT. SIGNS AND SYMPTOMS FROM CHRONIC EXPOSURE RESEMBLE THOSE FROM ACUTE MISHAPS BUT ARE IN PART SYSTEMICALLY MORE SEVERE. LONG-TERM EXPOSURE TO VAPOR CONCENTRATIONS HAVE BEEN REPORTED TO PRODUCE NON-SPECIFIC SYMPTOMS SUCH AS NERVOUSNESS, LOSS OF APPETITE, NAUSEA, AND DIARRHEA. OTHER SYMPTOMS RELATED TO THE NERVOUS SYSTEM, GASTROINTESTINAL TRACT, LUNGS, EYES, AND REPRODUCTIVE SYSTEM HAVE BEEN CITED.

INGESTION

DO NOT INGEST. INGESTION MAY RESULT IN LUNG ASPIRATION. INGESTION WILL CAUSE SEVERE GASTROINTESTINAL DISTRESS. SEVERE ORAL INTOXICATION WILL LEAD TO INTENSE BURNING OF THE THROAT AND MAY RESULT IN DROWSINESS, DULLNESS, NUMBNESS, AND HEADACHE FOLLOWED BY DIZZINESS, WEAKNESS, AND NAUSEA. LOSS OF CONSCIOUSNESS AND CONVULSIONS FOLLOWED BY DEATH MAY RESULT. SEE HEALTH DATA SECTION BELOW.

HEALTH DATA

ASPIRATION MAY LEAD TO CHEMICAL PNEUMONITIS WHICH IS CHARACTERIZED BY PULMONARY EDEMA AND HEMORRHAGE, AND MAY BE FATAL. SIGNS OF LUNG INVOLVEMENT INCLUDE INCREASED RESPIRATION RATE, INCREASED HEART RATE, AND A BLUISH DISCOLORATION OF THE SKIN. COUGHING, CHOKING, AND GAGGING ARE OFTEN NOTED AT THE TIME OF ASPIRATION. GASTROINTESTINAL DISCOMFORT MAY DEVELOP, FOLLOWED BY VOMITTING, WITH A FURTHER RISK OF ASPIRATION.

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IV EMERGENCY & FIRST AID PROCEDURES**EYE CONTACT**

IMMEDIATELY FLUSH EYES WITH LARGE AMOUNTS OF WATER AND CONTINUE FLUSHING FOR 15 MINUTES UNTIL IRRITATION SUBSIDES. IF IRRITATION PERSISTS, SEEK MEDICAL ATTENTION.

SKIN CONTACT

WASH CONTAMINATED AREA THOROUGHLY WITH SOAP AND WATER. USE A HAND OR SKIN LOTION TO PREVENT DRYNESS. IF REDNESS OR IRRITATION OCCURS, SEEK MEDICAL ATTENTION.

INHALATION

IF EXPOSURE LEVELS EXCEED THE LIMITS LISTED IN SECTION II OR III, REMOVE VICTIM FROM EXPOSURE. IF DISCOMFORT PERSISTS SEEK MEDICAL ATTENTION.

INGESTION

DO NOT INDUCE VOMITING. SEEK MEDICAL ATTENTION.

0908-2624

TRW-01254

V PERSONAL HEALTH PROTECTION INFORMATION**EYE
PROTECTION**

EYE PROTECTION IS NOT REQUIRED UNDER CONDITIONS OF NORMAL USE. IF MATERIAL IS HANDLED SUCH THAT IT COULD BE SPLASHED INTO EYES, WEAR PLASTIC FACE SHIELD OR SPLASH-PROOF SAFETY GOGGLES.

**SKIN
PROTECTION**

USE IMPERVIOUS SYNTHETIC RUBBER CLOTHING (BOOTS, GLOVES, APRONS, ETC.) OVER PARTS OF THE BODY SUBJECT TO EXPOSURE.

**RESPIRATORY
PROTECTION**

RESPIRATORY PROTECTION IS NOT REQUIRED UNDER CONDITIONS OF NORMAL USE. IF VAPOR OR MIST IS GENERATED WHEN THE MATERIAL IS HEATED OR HANDLED, USE AN ORGANIC VAPOR RESPIRATOR WITH A DUST AND MIST FILTER. ALL RESPIRATORS MUST BE NIOSH CERTIFIED.

VENTILATION

GENERAL ROOM VENTILATION IS NORMALLY SUFFICIENT. IF VAPOR OR MIST IS GENERATED WHEN THE MATERIAL IS HEATED OR HANDLED, ADEQUATE VENTILATION IN ACCORDANCE WITH GOOD ENGINEERING PRACTICE MUST BE PROVIDED TO MAINTAIN CONCENTRATIONS BELOW THE SPECIFIED EXPOSURE OR FLAMMABLE LIMITS.

OTHER

CONSUMPTION OF FOOD AND BEVERAGE SHOULD BE AVOIDED IN WORK AREAS WHERE HYDROCARBONS ARE PRESENT. ALWAYS WASH HANDS AND FACE WITH SOAP AND WATER BEFORE EATING, DRINKING, OR SMOKING.

0908-2625

TRW-01255

VI FIRE PROTECTION INFORMATION

FLASH POINT < 20F

TEST METHOD P.M.C.C.

AUTOIGNITION TEMPERATURE NO DATA

TEST METHOD NO DATA

FLAMMABLE LIMITS IN AIR % BY VOL.

LOWER NO DATA

UPPER NO DATA

EXTINGUISHING
MEDIA

USE DRY CHEMICAL, FOAM, OR CARBON DIOXIDE.

SPECIAL FIRE
FIGHTING
PROCEDURES

WATER MAY BE INEFFECTIVE BUT CAN BE USED TO COOL CONTAINERS EXPOSED TO HEAT OR FLAME.

UNUSUAL FIRE
AND EXPLOSIVE
CONDITIONS

DENSE SMOKE MAY BE GENERATED WHILE BURNING. CARBON MONOXIDE, CARBON DIOXIDE, AND OTHER OXIDES MAY BE GENERATED AS PRODUCTS OF COMBUSTION. CAUTION!--CONTENTS ARE UNDER PRESSURE AND CAN EXPLODE WHEN EXPOSED TO HEAT OR FLAMES.

VII REACTIVITY DATASTABILITY
(THERMAL,
LIGHT, ETC.)

STABLE

CONDITIONS TO
AVOID

NONE

HAZARDOUS
POLYMERIZATION

WILL NOT OCCUR

CONDITIONS TO
AVOID

NONE

INCOMPATIBILITY
MATERIALS TO AVOID

MAY REACT WITH STRONG OXIDIZING AGENTS.

HAZARDOUS DECOMPOSITION
PRODUCTS

NONE

TRW-01256

0908-2626

VIII ENVIRONMENTAL PRECAUTIONS

STEPS TO BE
TAKEN IF
MATERIAL IS
RELEASED OR
SPILLED

CONSULT HEALTH EFFECT INFORMATION IN SECTION III, PERSONAL HEALTH PROTECTION INFORMATION IN SECTION V, FIRE PROTECTION INFORMATION IN SECTION VI, AND REACTIVITY DATA IN SECTION VII. NOTIFY APPROPRIATE AUTHORITIES OF SPILL. CONTAIN SPILL IMMEDIATELY. DO NOT ALLOW SPILL TO ENTER SEWERS OR WATERCOURSES. REMOVE ALL SOURCES OF IGNITION. PROVIDE ADEQUATE VENTILATION DURING CLEAN-UP. ABSORB WITH SOLVENT ABSORBENT MATERIAL. LARGE SPILLS MAY BE PICKED UP USING VACUUM PUMPS, SHOVELS, BUCKETS, OR OTHER MEANS AND PLACED IN DRUMS OR OTHER SUITABLE CONTAINERS.

WASTE DISPOSAL
METHOD

ALL DISPOSALS MUST COMPLY WITH FEDERAL, STATE, AND LOCAL REGULATIONS. THE MATERIAL, IF SPILLED OR DISCARDED, MAY BE A RCRA WASTE. THE MATERIAL, IF SPILLED OR DISCARDED, MAY BE A REGULATED WASTE. REFER TO STATE AND LOCAL REGULATIONS. CAUTION: IF REGULATED SOLVENTS ARE USED TO CLEAN UP SPILLED MATERIAL, THE RESULTING WASTE MIXTURE MAY BE REGULATED. DEPARTMENT OF TRANSPORTATION (DOT) REGULATIONS MAY APPLY FOR TRANSPORTING THIS MATERIAL WHEN SPILLED. WASTE MATERIAL MAY BE LANDFILLED OR INCINERATED AT AN APPROVED FACILITY.

IX MISCELLANEOUS

HANDLING AND
STORAGE
REQUIREMENTS

THIS PRODUCT IS CLASSIFIED AS ORM-D (CONSUMER COMMODITY) UNDER DOT REGULATIONS. SEE 49 CFR 171 THROUGH 178 FOR SHIPPING REQUIREMENTS. ALL IGNITION SOURCES IN THE AREA SHOULD BE CONTROLLED. FIRE EXTINGUISHERS SHOULD BE KEPT READILY AVAILABLE. SEE NFPA 30 AND OSHA 1910.106--FLAMMABLE AND COMBUSTIBLE LIQUIDS. DO NOT STORE AT TEMPERATURES GREATER THAN 120 F. CONTENTS UNDER PRESSURE AND CAN EXPLODE WHEN EXPOSED TO HEAT OR OPEN FLAME. CAUTION!--DO NOT PUNCTURE OR INCINERATE.

ADDITIONAL
INFORMATION

THIS MIXTURE MAY BE FORMULATED IN PART WITH COMPONENTS PURCHASED FROM OTHER COMPANIES. IN MANY INSTANCES, ESPECIALLY WHEN PROPRIETARY OR TRADE SECRET MATERIALS ARE USED, PENNZOIL COMPANY MUST RELY UPON THE HAZARD EVALUATION OF SUCH COMPONENT SUBMITTED TO PENNZOIL BY THAT PRODUCT'S MANUFACTURER OR IMPORTER.

X PHYSICAL PROPERTIES

BOILING POINT	< -20F (PROPELLANT)	PERCENT VOLATILE	10
MELTING POINT	N/A	VAPOR DENSITY (AIR=1)	3 - 5
APPEARANCE	CLEAR, WATER-WHITE.	EVAPORATION RATE (EE=1)	>1
ODOR	PLEASANT ODOR.	SPECIFIC GRAVITY	0.9
VAPOR PRESSURE	50PSIG @ 20C IN CAN.	MOLECULAR WEIGHT	VARIABLE
SOLUBILITY	SOLUBLE IN HYDROCARBONS. EMULSIF. S 1.1.1.		